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REHABILITATION OF THE HANDICAPPED

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REHABILITATION OF THE HANDICAPPED

A SURVEY OF MEANS AND METHODS

Edited by

WILLIAM H. SODEN

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WITH A FOREWORD BY

SIDNEY LICHT, M.D.

Editor, "Occupational Therapy and Rehabilitation"

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FOREWORD

The word *rehabilitation* is currently used to label so many unrelated spheres of activity that it has lost its semantic strength and sharpness in the drive for public acceptance and speedy development. Instead of selecting or coining better words, many newly organized disciplines adopted this medieval word, which for centuries has had the canon-law meaning of "restoration of one's good name." *Rehabilitation,* which is more accurately rendered from the Latin by the word *reablement,* primarily signifies "restoration," and it is this meaning which so many have wished to state in a single word that was sufficiently different from commonly used words to have technical value.

The modern concept of rehabilitation began with Pastur, who established in Belgium in 1907 a school for the vocational training of people too disabled to be admitted to existing apprenticeships. Thus, from the beginning, the improvement of individual earning capacity has been most important. The Western European countries which adopted this humane approach to the betterment of opportunities for the handicapped spoke of it as "re-education," and to a great extent they still do.

When the English-speaking countries popularized vocational retraining, they called it "rehabilitation," and this word gained acceptance during the last years of the first World War. During the second quarter of this century and particularly during the last years of the second World War, the word *rehabilitation* was extended to cover most aspects of restoration, including improvement in natural economy, fertilization of the soil, reformation of juvenile delinquents, revival of the morale and morals of adults, and finally that combined effort called "medical rehabilitation."

There are many definitions of medical rehabilitation, and its ever-broadening scope indicates plainly that the definition of this term will become more inclusive with the passage of time. Whatever else medical rehabilitation may become, it is "a concept of treatment which combines medical, psychological, educational, and sociologic

methods to give the disabled maximum independence commensurate with his limitations." The broad and rapid development of this concept, catalyzed by the wartime need for manpower, caused many to claim all or part of it as their very own. Medical rehabilitation, once begun, developed like a chain reaction. Some of the developments were so influenced by the local setting and personalities that individuals identified themselves with practices which burgeoned simultaneously in many places. Individual accreditation for innovations and progress must remain secondary to the development of the whole field, if for no other reason than that the facts regarding origination were fused into the general accomplishment by the heat of the times.

Medical rehabilitation was concerned with so many types of injury and disease, so many specialists and special assistants, that it soon came to be intimately associated with the word *teamwork,* justly implying that rehabilitation could not be effected by one person but only by the integrated activities of many, ideally of all. It was soon realized that each member of the rehabilitation team needed more than a special skill; he needed a quasi-religious fervor to hasten a process usually considered to be prolonged if not impossible.

In these teams physicians were greatly outnumbered by their lay assistants, whose exuberance made the physicians somewhat self-conscious. The dignity of the physician eschews publicity. The medical profession looked askance at the close affiliation of the rehabilitation physician with vocational guidance counselors, mathematics teachers, physical educators, Braille instructors, and speech correctionists, who used tools and words foreign to the medical school. There were not enough physical medicine men to go around, and physicians from all walks of medicine took over.

Many were too busy learning or doing to write, and there was little to write that would interest medical editors. What little was written was scattered in more journals than there were team members. At first the writing was introductory, and later it became inspirational. Now we have entered the period of technical writing, but the scattering of articles has further increased. Occasionally we hear of an article in an obscure or unobtainable journal. Although various journals publish some articles in this field, there is only one devoted to medical rehabilitation and even this one could not possibly be all-inclusive.

To ease our continued search for such information, the editor of this book, long a lay executive in medical rehabilitation activities, has worked diligently to bring much of the recent thinking in this field under one cover. His ability to secure articles covering so broad a range of subject matter is a tribute to his industry and universal interest. The inclusion of subjects not always brought within the focus of medical rehabilitation is a favorable sign of the usefulness which so many will find in this volume.

Cambridge, Massachusetts. SIDNEY LICHT, M.D.
May, 1949.

EDITOR'S PREFACE

The purpose of this volume is to assemble representative accounts of procedures in current use for the mental and physical rehabilitation of persons disabled by illness or injury or otherwise handicapped. Workers in this field have had difficulty in obtaining reports of the accomplishments of their professional colleagues and of other members of rehabilitation teams throughout the country. For this reason the editor of the present volume requested specialists in various phases of the rehabilitation process to contribute reports on their recent activities in a common effort to increase the general understanding.

The wholehearted response received indicates not only the general appreciation of the need for teamwork in this field but also the vitality of the rehabilitation program. At no time in the past twenty years has there been such a keen realization of the fundamental importance of rehabilitation in all its phases as is evident today.

The viewpoint taken here is that the rehabilitation process should begin when the disability occurs and that it does not end until the disabled person is utilizing his limited abilities to the maximum. The prime necessity of scientific medical care throughout the process is recognized. It is just as obvious, however, that nursing, technical work, physical therapy, occupational therapy, psychology, social work, vocational guidance, workshop organization, and the enlightened efforts of public-spirited citizens must all play their parts in a fully effective process of rehabilitation.

This book is commended to the attention of all those interested in solving the problem presented by our multi-million handicapped. This problem is primarily one of scientific care for individual welfare, but in our civilization it challenges the best efforts not only of medicine but of devoted medical therapists, educators, social workers, industrial therapists, those interested in the long-range economic aspects of rehabilitation, and students in all these fields.

The editor wishes to acknowledge the enthusiastic and generous cooperation of the contributors who have written this book and of

the many friends whose services contributed to its production. It is sincerely hoped that his indebtedness will be repaid in some measure by the stimulation of greater interest in and understanding of rehabilitation.

Northampton, Massachusetts. WILLIAM H. SODEN
May, 1949.

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PART I

GENERAL MEDICAL AND SURGICAL TECHNICS

EARLY AMBULATION IN POSTOPERATIVE RECOVERY

By DANIEL J. LEITHAUSER, M.D.

During the past five years the subject of early ambulation has become popular in discussions among the laity, and the technic has been employed by a constantly expanding group of surgeons. The revival of interest in this method of postoperative care dates from a paper published by this author in 1941 (1). Since that time the procedure has gained recognition as a development in surgical practice comparable to the developments of the past thirty years in insulin therapy for diabetes and liver therapy for pernicious anemia.

For centuries severe illness has been associated with confinement to bed, and it was only natural that bed rest be considered to be equally essential to the processes of recovery from the wounds of surgery. It is quite true that following the crude surgery prior to the present century, early ambulation as it is now practiced was impossible. However, with our present knowledge of physiology, anatomy, surgical technic, and refined suture material, postoperative morbidity and mortality can be greatly reduced, with a smoother, shorter convalescence, by the heretofore unorthodox practice of getting surgical patients out of bed within a few hours after operation. The efficacy of early ambulation in reducing the incidence of postoperative complications, in lowering mortality, in shortening the convalescence period, and in providing greater comfort and security for the patient, was established in a report (2) of its use with over 2,500 patients. With these patients the procedure was refined and a specific technic was established and integrated with related procedures in the management of surgical patients both pre- and post-operatively, by nurses and dietitians as well as the medical staff.

The procedure was used in the U.S.A.F. Rehabilitation Program (3, 4) to decrease the period of convalescence, and, although the advantages of early ambulation were not made available to military surgical patients, the principles were demonstrated as valuable in reducing the time of recovery from illness even when applied after

the patients' release from care by the surgeon. General adoption of early ambulation will permit greater efficiency in the use of the hospital facilities and medical personnel, by which far larger numbers of patients may receive better surgical care without expansion of existing hospital structures. If early ambulation were now in widespread use, hospitals in certain areas might be found to be already overexpanded. For the armed forces, veterans, and civilians, early ambulation offers surgical patients quicker recoveries with less discomfort, less time lost, greater safety, and reduced cost of medical care.

The Physiologic Basis of Early Ambulation

During thirty-five years of important physiological research Cannon (5) clarified our understanding of the self-regulatory mechanisms of the human body and introduced the term *homeostasis* to designate the "adaptive stabilizing arrangements" by which the body maintains an amazing constancy of performance under a wide range of external and internal environmental conditions. After emphasizing "the extreme instability of our bodily structure, its readiness for disturbance by the slightest application of external forces and the rapid onset of its decomposition as soon as favoring circumstances are withdrawn," Cannon (5) chose to quote the French physiologist Charles Ricket, who in 1900 wrote: "The living being is stable. It must be so in order not to be destroyed, dissolved, or disintegrated by the colossal forces, often adverse, which surround it. By an apparent contradiction it maintains its stability only if it is excitable and capable of modifying itself according to external stimuli and adjusting its response to the stimulation. In a sense it is stable because it is modifiable—the slight instability is the necessary condition for the true stability of the organism."

Physiologists recognize that all the living cells in the body reside within a coating of dead or inert material and carry on their existence surrounded by fluid. The circulating fluids, or fluid matrix, of the body (blood and lymph) provide the means by which each cell obtains food, water, and oxygen and discharges waste materials. Thus, the efforts of the body toward maintaining homeostasis are involved for the most part in maintaining adequate circulation of body fluids of proper composition, and are controlled by a nervous system which has been designated as "involuntary" because the mind exerts little

control over it, or "autonomic" because it functions almost automatically. If the processes of self-regulation and self-repair which Hippocrates recognized as the "healing force of nature" were not limited, little need for physicians would exist, for the practice of medicine consists of employing therapeutic procedures (medical, surgical, or mental) which will support or replace adaptive mechanisms which have been overwhelmed, thereby aiding re-establishment of normal homeostasis. Frequently, treatment in support of one condition results in disturbance of the autonomic nervous system, and consequently of body function. This is particularly true of surgery, and functional disturbances following operations constitute their greatest hazard.

Under the best possible conditions an operation is an affront to the autonomic nervous system which invokes cringing responses of the respiratory, digestive, and circulatory systems. Especially after abdominal operations, the diaphragm is inhibited and vital capacity is greatly reduced, peripheral circulation is slowed, and there is a sludging of the blood (massing of agglutinated red cells). Abdominal distention is an additional distressing and detrimental factor. Without positive measures to aid in the re-establishment of homeostasis a variety of complications may occur, possibly with fatal consequences.

Adequate amounts of food (including water), exercise, and rest, properly proportioned, long have been known to be the basic requirements for health. The human body is so constituted that food is essential to support its growth, repair or maintenance, and activity, but, at the same time, activity is necessary to the processes by which food is utilized and the ability to maintain activity is continued. Every physician is familiar with the debility which follows extended periods of near-complete body inactivity. The period required to re-establish normal body function is frequently longer than that of the illness. The illness after surgery is functional, and thus obviously the requisites to healthy body function are not altered by surgical procedures.

As a result of surgical trauma, especially after abdominal operations, there is a reflex inhibition of the diaphragm and spasm of other respiratory muscles, thereby limiting excursion of the thoracic cage, which reduces tidal air and vital capacity and is accompanied by shallow, rapid breathing, which has been shown to cause anoxemia (6, 7). Vital capacity may be reduced by as much as 80 per cent

after an abdominal operation, and not return to normal for two weeks (8). In patients confined to bed after an operation, bronchiolar contraction and expansion are usually diminished and mucous secretion is increased. Under these conditions the mucus which ordinarily is removed by ciliary action may span or plug the bronchioles. Subsequent ciliary action moves the obstruction but produces negative pressure in the air cells, thereby causing collapse (9). When accumulation of mucus from smaller tubules involves one of the larger bronchi, the negative pressure may cause atelectasis in an entire lobe. Ultimately, the abnormal pulmonary function may produce anoxia with its serious consequences, and/or atelectasis, infection, and pneumonia. The upright position is one in which the body organs are accustomed to function and moderate exercise stimulates deep breathing, with expansion of the bronchioles and bronchi which loosens the mucus present and stimulates the cough reflex. After certain upper abdominal operations a balanced regimen of muscle exercises followed by ambulation with deep breathing and coughing will produce a return of normal vital capacity, or normal pulmonary function, in two to five days instead of the fourteen days required by bed patients (10).

Without exercise, circulation of both blood and lymph is lessened and with anoxemia the condition further contributes to the possibility of anoxia and other complications. On the arterial side, the arterioles act as a bottleneck, particularly in the presence of vasoconstriction, and obstruct the flow of sludged blood. This may cause local anoxia which increases the permeability of the capillaries with loss of plasma. The process may terminate in shock. Or, the sludge may settle in the veins, particularly the deep veins of the legs which are horizontal when the patients are confined, with consequent thrombosis and embolism (11, 12). The upright position and ambulatory activity increase the rate of blood flow to all parts of the body, particularly the extremities. The arterioles, venules, and capillaries dilate, permitting sludge to pass more readily, and thereby decreasing the tendency to anoxemia and the development of thrombosis.

Inactivity and sedatives reduce the muscular tonus and motility of the gastrointestinal tract, inhibit digestive secretions, and reduce appetite. Ambulation stimulates the glands and muscles of the intestinal tract, improving tone and motility and hastening bowel evacuation—all basic requirements for homeostasis.

The mechanisms by which he autonomic nervous system controls the response of different tissues of the body to various conditions have not been defined but the responses initiated by the autonomic nervous system in response to muscle activity are summarized by Carlson (13):

Muscle contractions, as in voluntary movements, involve:

1. Increased production of wastes (CO_2, etc.)
2. Increased heat production
3. Greater activity of the nervous system (e.g., excitement)

Which, in turn, cause:

1. Increased heart rate
2. Increased output of blood per heartbeat
3. Vasodilation in active muscles
4. Vasoconstriction in the abdominal organs
5. Increased volume of circulating blood (by splenic contraction)
6. Increased rate and depth of breathing

It is evident that the reaction of any individual's body to the physiologic insult of surgery is dependent upon numerous factors: age, size, severity of illness, nutritional status, genetic endowment, sensitivity, type of anesthesia, extent of surgery, and many others. Nevertheless the processes responsible for the success of early ambulation now can be very accurately charted. Stimulation of normal homeostasis by initiating demands in opposition to the abnormal functional responses to surgery results in quicker, easier recovery for the patient, expenditure of less time by the surgeon, and reduced economic loss to the patient and to the community.

Early Ambulation Procedure (2)

Successful results with early ambulation are dependent not only upon the regimen of postoperative care, but also upon preparation for surgery, the use of physiologic incisions, skill and care in the manipulation of structures during surgery, and the suture materials used to close the wound.

An important factor in the preparation of a patient for abdominal surgery is assurance of a favorable fluid balance so that dehydration of the tissues will be minimal. The night before operation a full diet is permitted, except prior to extensive gastrointestinal surgery, and an enema is not given unless colon surgery is planned. The patient

is not restricted to his bed but is permitted to be up as he desires. Moderate doses of a suitable barbiturate may be given the night preceding and on the morning of the day of operation and for patients who are to undergo extensive surgery, glucose, parenteral fluids, and/or whole blood are given as indicated.

Abdominal incisions should maintain the integrity of the transversalis muscle which supports the abdominal contents. The fibers in the aponeurosis of the transversalis muscle should be split and not cut at right angles, as is done in the mid-rectus incision, for they are not well interwoven and therefore the cut ends cannot be sutured securely. Incisions favorable to wound security in early ambulation are the midline, transverse, transverse bordering on the oblique, in the upper and lower abdomen, and the muscle-splitting, such as the McBurney. In the area of the midline incision the fibers are well fused and can be sutured securely with proper material. The author has obtained best results by closing midline and all long incisions with No. 32 alloy steel wire to the outer fascia layer and using fine catgut to the peritoneum and inner fascia layers. In the McBurney incision fine catgut is all that is necessary for all layers. The skin is always closed with subcuticular wire sutures. However, in postoperative hernia and infections of the peritoneal cavity, especially where drains are employed, No. 32 alloy steel wire, in figure-of-eight sutures, including the outer fascia layer and peritoneum, provides the desired wound security for early ambulation; catgut is not secure in wounds under tension or in the presence of infection. Only abscess cavities in the abdomen require drains, and then small drains usually are preferable.

Maximum advantage of early ambulation is contingent upon a positive, aggressive approach by all the persons involved in postoperative care of the patient. Ambulation on the second or third day following surgery is no longer considered "early." To this author, early means immediately after the patient has recovered fully from the anesthetic, which is two to six hours after operation. Type of anesthesia does not provide any contraindication to early ambulation. Complications in the respiratory and circulatory systems are usually incipient immediately after operation.

The greatest obstacle to the practice of early ambulation is fear—on the part of the surgeon and the nurse. This fear centers around the anxiety over possible consequences, such as wound disruption,

and the fear is promptly transmitted to the patient. The fear manifested by many patients at their first experience out of bed a few hours after operation is quickly allayed by their recognition of rapid improvement in physical condition and the absence of uncomfortable results, and thereafter they are eager to be up. It is not enough that the surgeon be fully convinced of the efficacy of activity in the avoidance of complications after operation and in promoting the future health of the patient. Nurses who are to get patients out of bed a few hours after operation must be retrained to overcome their apprehension of a type of management in which they have not been schooled, for unless they have confidence in the procedure their uncertainty will be transmitted to the patient. Even with a staff trained in the care of ambulatory patients, the surgeon must be constantly alert to be certain that patients get out of bed and walk frequently and that a regular program is maintained. Patients must constantly be urged to be active.

As soon as the patient has recovered sufficiently from the anesthetic, his in-bed exercises are directed by an exercise chart (2) placed at the foot of the bed which directs him to wiggle his toes frequently, flex and extend the knees and ankles four times every hour. Out-of-bed exercises consist of deep breathing and a voluntary cough on rising if palpable râles are present. This is then followed by ambulatory activity, the duration and extent of which are gradually increased as tolerated. Patients are not allowed to sit up (in chair or bed) for any length of time until ambulation is established.

After any abdominal operation, unless definite contraindications exist, the patient is gotten out of bed immediately upon recovery from the anesthesia. He is instructed to turn upon his side at the edge of the bed, so that the legs clear the bed. From this position it is easy to raise the trunk of the body to an upright position. From the sitting position the patient is assisted to stand upon a stool beside the bed and told to take a few deep breaths. The presence of râles in the chest may be determined by the nurse (without the use of a stethoscope) who places her hand on the patient's back at the bases of the lungs while the patient coughs in response to instruction. If râles are present, forced coughing is continued until the lungs are cleared of mucus and the râles disappear. The patient may walk around or across the room before returning to bed, which is readily

accomplished by reversing the procedure of arising. Patients seldom require any assistance after the first or second period out of bed. Bathroom privileges are granted immediately and the patients are constantly encouraged to walk frequently. The rapidity with which ambulatory activity is increased must for each patient be balanced against his condition prior to operation, the extent of surgery, and the degree of debility present postoperatively.

Early ambulation is not indicated when the patient is in profound shock, when internal hemorrhage is uncontrolled, or when death from disease is imminent. Under conditions of physiologic incision and proper use of suture materials and technic, infection, fever, moderate peripheral vascular disturbance, and hemorrhage short of shock are not contraindications to activity, but the extent must be determined by the surgeon in relation to the factors involved.

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REHABILITATION OF THE CHRONIC ARTHRITIC

By WALTER M. SOLOMON, M.D.

The management of any chronic arthritic is most satisfying. The day of pessimism for these patients is past. Although as yet no specific therapy is available, many forms of treatment are effective. These include numerous kinds of medication, surgery, psychotherapy, and a comprehensive physical medicine rehabilitation program. If all other methods of care were denied these long-suffering individuals except the help provided by physical medicine rehabilitation, they could be assured of comfort and, in most instances, a reasonably normal existence.

Chronic arthritis includes many types. Rheumatoid arthritis, the greatest crippler of them all, is the one most dreaded, and with justification. Spondylitis or rheumatoid arthritis of the spine (also called Marie-Strumpell's disease) is less common. Although not as disabling generally as the peripheral joint type, it is disastrous because it affects men during their prime. Still's disease, the form of chronic arthritis found in children, is considered by most rheumatologists as a manifestation of rheumatoid arthritis. This disease, which is infrequently seen, can be most incapacitating. Since it attacks these patients at such an early age, everything must be done to prevent a long life of crippledom. The degenerative joint diseases called hypertrophic arthritis or osteoarthritis are the most prevalent of all forms of this disorder and are the oldest diseases known to man. They are persistent and often most painful and disagreeable. Chronic gouty arthritis, or that stage of gout when the joint and soft tissue damage interferes with the normal activity, is another form of chronic arthritis for which the measures included under physical medicine rehabilitation are useful. Chronic arthritis patients also include the large number in whom an infectious process in the joints produced by a wide variety of organisms results in joint crippling and disability.

Many other forms of diseases and disorders included under the

general term of chronic arthritis may be assured of help by applying the principles of physical medicine rehabilitation.

The number of patients suffering with all types of chronic arthritis is tremendous. According to the latest report, the rheumatic diseases are first in prevalence, exceeding the number of cases of tuberculosis, diabetes, and cancer combined. A survey disclosed that more than 3,000,000 persons annually suffer from various forms of arthritis. In the United States rheumatism is the cause of invalidism for approximately 147,000 annually, resulting in 97,000,000 days lost from work and estimated to cost $200,000,000 in wages and an additional $100,000,000 for medical care. In 1931 the Veterans Administration paid over $10,000,000 in disability compensation to about 35,000 ex-service men of the first World War for arthritis. During that war about 93,000 American soldiers developed some type of rheumatism, an incidence rate of 22.4 per 1,000 soldiers. Figures for the second World War are not yet available but will surely compare with the figures of the previous war. Reports from foreign countries show a similar condition; for example, in the British Isles, a sixth of the total absenteeism due to sickness is attributable to rheumatic diseases.

Rehabilitation of any type of chronic arthritic is not limited to care by specialists nor in large hospitals or institutions. Measures of rehabilitation must be more generally applied if they are to reach a larger number of arthritic patients. The family physician has the best opportunity to bring about early effective aid and must be made to realize the possibilities of this concept; he sees these arthritics from the onset of their disease; he has a more intimate contact with his patients and can influence them in both the medical and the social sphere; he can control the whole range of their care from the onset of their illness to the point when their condition will warrant a return to their previous work—if not in their pre-illness jobs, then perhaps in a somewhat modified capacity. This article will attempt to show that these measures and ideas are relatively simple and can be utilized by all physicians in most communities.

Physical Therapy

Physical measures have been used from time immemorial in the care of chronic arthritis. Writings from ancient times have shown how patients have sought the aid of these methods in the alleviation

of their symptoms. This type of therapy to be helpful must be used frequently, not once or twice a week in the physician's office or in a department of physical medicine of a hospital, but at least once every day and preferably several times a day. Therefore the treatments must be given in the home. Simple measures which are safe, convenient, and relatively inexpensive must be prescribed.

Many physical methods are useful. The principal forms are heat, massage, and exercise. Heat in any form increases the circulation to the joints and surrounding tissues, relaxes muscle spasm, and relieves pain. Local heat dilates the capillaries, increases the blood and lymph flow, and accelerates tissue metabolism.

INFRARED LAMPS. Many simple and inexpensive types of heating apparatus are available. Infrared lamps with incandescent tungsten or carbon filament bulbs are the best radiant heaters for general use. The bulb type of infrared lamp emits a greater percentage of the near-infrared rays which penetrate to the corium and the subcutaneous layers of the skin. These heat lamps have bulbs with wattage from 200 to 1,500 and are most often enclosed in reflectors which concentrate the heat. They are usually mounted on stands.

The baker is another convenient means of applying local heat. It is a simple apparatus made of curved sheet tinplate supported by a framework of strap iron with four or six 60-100 watt bulbs mounted in the frame. A baker can be constructed at little cost. Specifications for its construction can be obtained by writing to the Council of Physical Medicine of the American Medical Association in Chicago. Bakers are particularly useful for treating both lower extremities or the entire back at one time.

When infrared lamps are used, thirty-minute exposures are necessary to receive the maximum vasodilatation. The lamp should be used two or three times a day. The distance of the lamp from the joint depends on the condition of the joint, the type of lamp, and its reflector. The bulbs with the larger wattage do not change the penetration but permit the application of the heat to a larger area. At no time should the heat feel uncomfortable.

PARAFFIN. This is the least expensive and one of the most satisfactory means of applying heat. It is excellent for rheumatoid arthritis and for Heberden's nodes (degenerative joint disease of terminal joints of fingers). Paraffin has a high specific heat and a

low conductivity so that a temperature of 125-135° is well tolerated and maintained by the human skin. All that is necessary is 8-10 pounds of the ordinary paraffin, such as is used to seal jelly jars, and a fairly deep container in which it can be heated. If the patient has difficulty moving his hand, the paraffin may be applied by means of a paint brush. Other parts such as the knees, back, or shoulder may also be coated with a paint brush. In addition to producing hyperemia of the part treated, paraffin leaves the skin soft and pliable.

BATHS. For a rheumatoid arthritic, the ordinary bathtub is a convenient and readily available means of heating many joints at one time. It can also be recommended for most types of degenerative joint disease. The water secures general heating, relieves muscle spasm and pain, and produces general relaxation. An additional advantage is the incentive to exercise. The temperature of the water at the onset is 95-100° F. and may be gradually increased to 103-104° F. The patient remains in the tub twenty to thirty minutes, but never long enough to cause fatigue.

CRADLES. Occasionally a rheumatoid arthritic finds it difficult to get in and out of a bathtub. For such cases a bed cradle large enough to cover the entire body except the head may be used. Eight or ten 60-watt bulbs are suspended at the top of the cradle and the temperature is maintained by turning the bulbs on and off. The cradle is covered with a blanket to help maintain the heat. The patient is exposed for twenty to thirty minutes.

DIATHERMY. Short-wave diathermy is another means of applying heat to the joints. It must be administered in a physician's office or a hospital department of physical medicine. Diathermy is particularly useful in the degenerative type of arthritis, especially that of the larger joints—the hips, knees, spine, or shoulder. By this method the internal temperature of the joints can be materially raised in a short time. The high-frequency currents have a greater degree of deep penetration than any other form of heating.

MASSAGE. Massage follows the use of heat. Physiologically, massage increases the circulation of the venous system, aids in the movement of lymph, relaxes muscle spasm, and helps maintain muscle and skin tone. Three types of massage are used with chronic arthritics, namely, stroking, kneading, and friction. A trained physical ther-

apy technician can give the best massage, but it is not always possible to obtain professional service, if for no other reason than the expense. Therefore a member of the family should be instructed how to give the massage, which will make it possible for it to be given frequently.

REST. No measure has been so much abused as rest. To order a patient to bed until all pain or swelling in a joint or joints subsides is the order to become a cripple. This applies to all forms of arthritis. Absolute bed rest results in weakness, muscular and bone atrophy, adhesions about the joints, and deformities. In addition to the alterations that occur in and about the joint, physiological changes occur in the entire body. The psychological disruption too is profound, with mental reactions resulting from prolonged bed rest that may be more difficult to overcome than the pathological changes in the tissues. During certain stages of many types of arthritis—for example in rheumatoid arthritis when there is an increase in body temperature or when a joint is acutely inflamed with an infectious process or during an acute exacerbation of a degenerative type of joint—bed rest is indicated. However, the time in bed is shortened, and the sooner out of bed the better. All arthritics regardless of cause or stage of the disease can go through a series of exercises daily, if nothing other than breathing exercises and the setting of certain muscles. Precautions to be taken for a patient in bed include a firm bed which does not sag, to prevent undue flexion of the spine; pillows kept to a minimum and never used under the knees; sandbags along the outer side of the legs to lessen the dangers of external rotation; and other similar simple devices.

EXERCISE. Exercise may be the most important factor in the rehabilitation of the chronic arthritic. Unfortunately, its purpose is the least understood and the most often neglected of all the physical measures. The term *exercise* is a broad one and includes everything from the movement of the individual joints to postural training, occupational therapy, proper walking, work therapy, etc. Exercises require specific instructions and supervision whether for a local part or for general work.

In rheumatoid arthritis exercise is the prophylaxis for deformity. Nothing is more vital. Other forms of therapy, such as heat and massage, are given so that the exercises may be less painful and more easily performed. Patients in most instances can be assured that if

they do their exercises persistently and according to instructions they will not be cripples. In the early stages of the disease, the exercises will require less fortitude, but they are still necessary. When joint movement is delayed, fibrosis and adhesions quickly develop, resulting in early deformity. If the arms or legs are immobilized for any length of time, the muscles soon lose their tone and atrophy rapidly follows. Exercises must be done *daily*. The minimum, and at times the maximum, is the full range of motion of each joint once each day. At certain stages this must be done slowly and carefully to avoid causing severe or prolonged pain. To wait until all pain leaves the joint might require twenty or thirty years; it is then too late to hope for joint motion. A great deal of difference exists between intelligent exercise for the joints and the senseless wiggling that some patients produce. This type of activity not only is of no value but may actually be harmful. Proper exercises never increase the activity of an arthritic process. In rheumatoid arthritis muscle weakness and atrophy may be very marked, chiefly the result of disuse as distinct from the muscle weakness found where actual nerve injury has occurred.

Voluntary exercise or motion is by all odds the most beneficial. Occasionally patients are unable to work even against gravity. Devices can be made to eliminate gravity by exercising in a horizontal plane or by use of a sling and pulleys. Later when the muscles gain strength and endurance, work can be done against gravity or against resistance. This additional work is gradually increased to a point short of fatigue and pain. Efforts to increase muscle strength are never dramatic. It is a slow process and often discouraging; however, persistence has its reward.

In degenerative joint disease detailed exercises are rarely necessary, since ankylosis or deformity rarely occurs. Many of these patients are overweight and demonstrate poor body mechanics. The spine often shows dorsal kyphosis and a lumbar lordosis. The knees are in a valgus or varus position, and the feet are frequently flat. Exercises to correct posture may be all that is necessary to relieve symptoms. Patients with this disease are inclined to overexercise. They find that, after inactivity such as a night's rest or sitting for any length of time, their joints are the stiffest, with the result that they often go through various forms of formal exercises, hoping to prevent further stiffness. Overuse of such joints is likely to produce

further irritation and destruction of the cartilage. Rest for the joint for relatively short periods is better than overactivity.

Nothing is more monotonous than simple stereotyped exercises, therefore a stimulus or incentive may be required. Furthermore, since most of the patients have experienced pain on movement of their extremities, they are afraid to use their painful joints; this is natural and understandable. Activities can be made interesting and, by careful selection, purposeful at the same time. A patient is likely to show more interest in the product of his efforts than in the manner of making them. The patient is eager to produce results; the technician or the one guiding his activities is concerned with the method of securing these results. Most patients find it easier to use their strong muscles or their painless joints to accomplish a movement; however, a technician or the physician must be on the alert to watch for these substitutions.

Occupational Therapy

Ideally, these patients should be under the care of properly trained occupational therapy technicians. This is neither possible nor absolutely necessary in many instances. The general principles of this important aid in the treatment of the arthritic can be utilized by all physicians. As with physical therapy, these occupational therapeutic procedures should be carried on at home. Occupational therapy is really exercise therapy. The use of suitable projects can improve joint motion and strengthen weak and atrophied muscles.

In addition to these valuable features, a factor of equal importance is the confidence which these activities restore. The effect on the morale of the patient is often tremendous. These patients frequently require such a boost. Most arthritics are sick both physically and mentally. A rheumatoid arthritic especially is often classed as the nervous, overconscientious type. To be sure, there are the apathetic type, the nervous and irritable type, the depressed type, and all the rest. However, considering the severity of the disease, what fear and apprehension it produces, and what pain and suffering these individuals endure, not for days or weeks but for months and years, is it any wonder that at times they demonstrate the signs of depression, neurasthenia, and the like? The activities of occupational therapy can aid in counteracting these moods. Diversional therapy

in itself can be most helpful. New recreations or pleasures of which they are capable may initiate greater peace of mind and create better morale than many other types of therapy. All arthritics, regardless of their previous activity, station in life, or age, can be considered for the purely diversional type of occupational therapy.

Vocational Therapy

Vocational training for the arthritic is as important as for other types of patients. Rheumatoid arthritics who develop sufficient physical handicap, patients with infectious processes involving the knees, resulting in ankylosed extended joints, and patients with painful hips or backs resulting from degenerative joint disease may be unable to return to their previous work. This does not mean that these individuals must be content to sit out the rest of their lives dependent upon relatives, friends, or the community for aid. Most arthritics, in contrast to other patients with chronic diseases, have an urge to be active and productive. Most arthritics can work, if not at their former occupation, certainly at some type in keeping with their difficulties. By using whatever faculties are left, these patients can be employable. Gainful work within their ability is therapy that aids physically, psychologically, and socially.

Training in vocational guidance can best be begun while the patient is in the hospital; however, many of these patients never enter the hospitals, and many do not require a prolonged stay in such institutions. With tuberculous patients, by way of contrast, the patient, the family, and profession accept a prolonged hospital stay, with six months as a minimum and a year or two as not unusual. These patients accept that for many months or even years thereafter their activity will be restricted; their previous occupation, if it cannot be altered, is abandoned; they soon realize that new plans and new ways of life must be begun; they accept their disease and make the proper adjustment. This positive attitude has developed by means of guidance and education over a period of many decades. While tuberculous patients are still in the hospital, occupational plans are determined which are helpful when they are discharged. They are shown their work capacity, and efforts are made to increase it. Such a program is not available for many chronic arthritics. Where can the majority look for such help? Surely the arthritic as a rule re-

quires as much vocational guidance as many other chronic patients. Very few general hospitals today have personnel who can counsel patients as to occupational possibilities or aid them in educational services. The occupational therapists make a valiant attempt, but their aid is insignificant compared with the need. The rehabilitation centers have only just begun to demonstrate their possibilities. Greater facilities must be provided to reach the large number of arthritic patients.

The Veterans Administration has attacked this problem intelligently and effectively, but their services are restricted. During the last war the Army and Navy took advantage of correspondence courses, not always agreeable or applicable to everyone, but often initiating interest in work which the patient subsequently followed. The Army and Navy hospitals also had workshops for machine and automobile repair, woodwork and furniture repair, printing presses, lathes, drill presses, power machinery, etc., which not only utilized the patient's past experience but maintained his work habits and his confidence. A few civilian hospitals, particularly for psychotic patients, make arrangements for their patients to attend trade schools in the neighborhood which eventually makes it possible for them to follow the trade taught on discharge from the hospital. Many arthritics would benefit by such programs.

Sheltered workshops should be more generally used by chronic arthritics but, like so many worth-while things, they are too few. The few that are available are kept too busy with patients other than arthritics. These centers provide an opportunity for acquiring new skill and a means of livelihood. Often they lead to regular and profitable employment outside the center.

Mechanical Aids

Splints, braces, corsets, arch supports, lifts on shoes, and similar aids are often necessary. The more complicated types of apparatus may require the aid of an orthopedist, but the family physician is equipped to care for the needs of most arthritics. Splints, casts, and the like are provided for the protection of joints and the prevention of deformities. In the acute stages, that is, when the joints are swollen, hot, red, and most painful, plaster of Paris casts may be used. The casts may be made with the ordinary inexpensive plaster

of Paris. As soon as they harden, they are bivalved. Lighter material such as the newer plastics, celluloid or cellulose acetate, and other trade preparations are also available. These splints are used chiefly during the night and are easily removed for the application of other forms of physical or occupational therapy. Braces and walking caliper splints are used for the spine, hips, knees, and ankles, and all have their part in making the patient ambulatory. It is outside the realm of this article to consider these various devices in detail, but they play an important part in physical restoration.

Treatment at Spas

The value of spas in the treatment of chronic arthritics has been appreciated, if not by the medical profession in the United States, certainly by many patients. In Europe the spas are usually controlled and supervised by the governments and have established a justifiable place in the care of these patients. In the United States the spas should be more frequently considered in the program of rehabilitation and their facilities made available for many more patients. The present institutions should be enlarged or new ones established. An ideal rehabilitation program could be started at these spas or health resorts and repeated return visits could be arranged. Included in the advantages of spa therapy is the effect of rest. These patients may be benefited by removal from their home with a complete change of activity and associates for a relatively short period. While at home many of these patients cannot enjoy complete physical rest and most often very little mental relaxation. At the spas routines are established that teach the patients how to live with their disease. All physical therapeutic measures are emphasized as a most important form of treatment so that the patients appreciate their significance and proper use. Hydrotherapy is particularly employed.

The waters at these spas are lauded as having definite therapeutic value and are used both internally and externally; externally for their mechanical or thermal effect and internally because they contain chiefly alkaline and saline anion groups. Many springs have the sulfate anion combined with calcium, magnesium, or sodium. Various claims are made for the importance of trace elements in the

waters, but their presence and therapeutic value have as yet not been proved scientifically.

Community Centers

Rehabilitation centers in all communities are necessary for arthritics. A well-functioning center in every community would be ideal. Unfortunately, only a few centers are now functioning in the larger cities and these are only inappreciably used. Other arrangements must be made to serve more of these patients. In the smaller communities a center might be established which would serve a complete county or sections of several counties, or mobile units could be organized to visit different communities at regular intervals. A center with the proper personnel and equipment can care for these arthritic patients physically, mentally, and vocationally. The community, recognizing its responsibilities and opportunities, will cooperate with such centers by accepting and utilizing these arthritic patients for the good of the community and the patient himself. Such centers naturally raise many problems as to cost, administration, support, transportation, etc., but the fact that they are needed and could furnish inestimable service justifies the efforts.

When physicians realize that the treatment of chronic arthritis includes not only the individual joint or joints but the care of the entire patient, they will think in terms of rehabilitation. Rehabilitation is an essential part of the treatment. When used in coordination with all the medical and surgical measures, it will do much to prevent and lighten the effect and damage caused by the various arthritic diseases.

CHRONIC ILLNESS AS A PUBLIC HEALTH PROBLEM *

By WILLIAM F. KING, M.D.

The Division of Adult Hygiene and Geriatrics was established by the Indiana State Board of Health to carry out the purpose of the law providing for "facilities and personnel for research investigation and dissemination of knowledge to the public concerning the health of persons of middle and advanced age and diseases common thereto."

The division began to function October 15, 1945, in what was practically a new field of public health activity with little in the way of proved experience to guide in setting up the work of the division. As a matter of fact, this was the first division of this kind to be established in any State Health Department in the United States. The title, Adult Hygiene and Geriatrics, was adopted because adult hygiene was in line with other public health activities in that it could be applied to the prevention and control of diseases more commonly associated with aging; the term *geriatrics* was considered to be quite important in order that the public generally should become familiar with the meaning of this term and its application to medical care of people in middle and older periods of life.

It was felt necessary to adopt some very clear objectives for the new division as follows:

1. To study the factors of life that are related to senescence and senility as these are influenced by age, environment, heredity, and the diseases and disabilities associated with advancing years
2. To help the public to know that senescence is normal; that senility is not a necessary part of age, and that through better understanding and cooperation much of the premature deterioration of aging can be prevented

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3. To have the public informed on all helpful preventive knowledge concerning diseases and disabilities of advancing years, and to encourage the medical profession, both in teaching and practice, to be interested in the problems of aging, particularly in the anticipation of preventable diseases of increasing years
4. To cooperate with and assist, as far as possible, the public and medical profession as well as public officials and others in a full appreciation of the economic, social, and cultural value and usefulness of men and women who by reason of years and experience constitute an increasingly important part of our population
5. To be interested in all laws, regulations, and facilities which affect the care, well-being, and usefulness of elderly people, and to seek the improvement of such laws, regulations, and facilities as may affect elderly people adversely

Most of the above program has not, of course, been carried out; much of the program may never be carried out fully. However, these are the objectives toward which we must continually strive if we are to approach a solution of the problem of dependency, invalidism, disability, waste of our human resources, and mounting cost involved in the increasing age and increasing chronic illness of our people.

The problem of chronic illness, especially as it affects our elderly population, must be recognized as a most important public health problem. Fifty of every 100 deaths today are from chronic disease as compared with six of 100 less than a century ago. According to the 1940 census, the population of Indiana was 3,427,796. Of this total population, 1,233,284 were over forty years of age. In other words, considerably more than one third of the people of Indiana in that census year had reached an age of forty or more. When more than one third of the people are in the age period in which chronic disease most commonly occurs, the practical public health administrator should assemble facts and information for the purpose of acquainting the people with the problem confronting them.

It is not true, of course, that all chronic disease and all chronic illness occur in elderly people. A nationwide survey of chronic illness made a few years ago disclosed the fact that slightly less than one half of all chronic illness was to be found in persons under forty-five years of age, the age generally accepted as the median age of life. Hence, in dealing with chronic illness we are dealing with a type of illness more or less common at every age of active life.

What are the chronic diseases? The most common ones are apoplexy (cerebral hemorrhage), diseases of the heart and blood vessels including arteriosclerosis (hardening of the arteries), renal disease (nephritis), cancer, diabetes, and rheumatism. Since these diseases constitute about two thirds of the total reported, they may be considered the most important of the chronic diseases.

Public interest in the chronically ill is not only widespread but is rapidly becoming concerted and insistent. Chronic illness impairs productivity, produces disability, increases social and medical problems. Chronic illness demands increasing hospital service even when hospital facilities are inadequate for acute cases and emergencies. The rising incidence of chronic illness, bringing the problem home to more and more families; the increasing proportion of the aging who are mentally and physically handicapped among recipients of public assistance; a realization that chronic illness is more frequent in the relief group and is more often the cause of dependency than is dependency the cause of chronic illness—these, with other forceful facts, make chronic illness a major problem of public health as well as of public economics.

Efforts at social treatment of the problem have been advanced far more than efforts at medical treatment. We have continued to enlarge the floor and raise the ceiling of public welfare, to make old age pensions and public assistance more attractive and more respectable, to add more and more to the mounting cost of dependency as a burden upon the still productive part of our population. We can now begin to see, and not too distantly, a place of decision between inhumanity on the one hand and bankruptcy on the other.

It has been a good many years since Dr. John Landis, then health officer of Cincinnati, Ohio, said truly, "No sanitary problem can be solved by taking care of the results of insanitation." It is just as true that the problems of dependency cannot be solved by striving to take care of the results of chronic disease. Care must be provided for dependency, to be sure, but unless we do something to prevent chronic illness, especially in the aging, something to enable older people to be more productive, more self-supporting, more independent, we shall not even approach a solution to the problem. The granting of an old-age pension does not result in a state of physical well-being.

What can be done to check or prevent the rising flood of chronic illness? Certainly much is possible beyond what is now being done. First, chronic illness must be better and earlier recognized, better understood, better cared for. We have recently observed National Heart Week. We should be, all of us, physicians and public alike and all together, observing a continuous heart week throughout all the years of active life. Much heart illness can be avoided; much can be prevented. We should be doing this. We have just devoted one month to raising money to be used against cancer. It's a fine thing to do and the money will be used to a good purpose. But, in the meantime, cancer goes on twelve months of the year, disabling, maiming, killing, even while we know that early recognition, prompt treatment, and adequate medical supervision can remove, destroy, and cure more than one third of all cancers.

The State of Connecticut instituted a program of cancer control in 1934. Of the 15,542 cases of proved cancer hospitalized from 1934 through 1943, 6,427 or 41.3 per cent were living as of January, 1944. Of the cases hospitalized prior to 1939, to the number of 5,703, a total of 1,230 or 22.5 per cent were living as of January, 1944. This is a record of all hospital cases of cancer from all sections and all economic groups of the state. Similar results are being accomplished in more than twenty states where well-organized programs directed toward cancer control are being carried out.

Much can be done to keep the public informed of all helpful preventive knowledge concerning diseases and disabilities of advancing years; especially of the newer knowledge which science, research, and medicine are constantly finding and proving. Much also can be done to stimulate the interest of physicians, dentists, nurses, and all other professional people in the problems of chronic illness and in the anticipation, early recognition, and prevention of chronic disease. Most can be done, of course, by inspiring people to consult their doctors often throughout the critical years of active life in preparation against the advancing years and the chronic weaknesses of these later years.

Facilities for training of both crippled children and disabled grown-ups, by restoring many to useful and independent lives, contribute much to lessening the sum total of chronic illness and disability. Organizations such as Goodwill Industries, Rehabilitation Centers, opportunities for vocational training with occupational and

physical therapy available to adults—all these can be made a helpful part in a nationwide effort toward meeting the problem. None of this is charity; it is public health; it is conservation of human resources.

One of the needs, of course, is for more hospital beds to provide medical and nursing care for cases of chronic illness, both dependent cases and pay cases. It must be kept in mind, however, that an increasing demand for more beds for chronic illness is really an evidence of failure to prevent the illnesses that require increasing hospital care. While it might be possible to build state institutions to house and care for all dependent chronically ill, to adopt this course would be to admit failure, to discourage all efforts except toward relief, and would contribute but little to a real solution of the problem.

The solution of our problem of chronic illness and disability will involve many factors beside chronic disease itself.

Physicians must be alert and prepared to recognize and deal with beginning conditions that lead to chronic illness. Men and women, especially throughout the critical, active years of life, must avail themselves of frequent, regular health consultations with their physicians in order to be better prepared for years of aging, free from chronic illness.

Industry must have a cooperative interest in order that men and women who are fit and capable may not be denied their opportunity and their right to work and produce regardless of calendar age. As Dr. Klumpp in writing "Is Man's Useful Life Ended at 65?" has so well stated, "We choose and select when we hire our workers, why can't we do the same thing in retiring our workers?"

The experience of the late Dr. Lillian J. Martin, who founded the San Francisco Old Age Counselling Center, proves that much can be done to enable old people to live effectively and happily. The work of this Center was begun courageously by Dr. Martin at a time when but few recognized the existence of a problem of aging people. The experience of the Center completely disproves the popular assumption that aging inevitably means decline and that physical and mental stagnation are an essential part of aging. The experience of the Center has shown that the old have definite economic worth to be utilized in creative effort.

Formerly infirmaries and poor asylums were incomplete without farms on which inmates worked as they were fitted and their physical

ability permitted. Even in those early days it was recognized that occupation, employment, work if you please, was good for the aging, good for their physical and mental health. Whether these farms were profitable was not important, since they served as an outlet for the activities of the patients. Today these farms are mechanized and are managed largely for profit, and the success or failure of the superintendent is too frequently determined by his success or failure as a farm manager. We have substituted so-called occupational therapy for good old-fashioned farm work, and we have lost something important in so doing.

That forward-looking people are giving increasing consideration to the problems and opportunities of aging is shown by the organization of groups, clubs, centers, in many communities in practically every state, by older people, of older people, for older people. Maturate Clubs, Borrowed Time Clubs, Recreation Centers for Seniors, Old Age Counselling Centers, The Old Men's Camp in Maine "Where Life Begins at Eighty," are all evidence of the growing interest of men and women of middle age and older in attaining a satisfying, creative, happy old age.

In the National Health Survey of 1936 it was found that 58 per cent of people at age sixty-five and over had some form of chronic disease or disability. The fear of chronic illness is one of the most haunting specters of increasing years. Excluding those disabled by mental illness, there remain the millions of our people in public homes, in hospitals, and in back bedrooms, who are permanent invalids. Added to these are other millions whose partial disabilities can be measured only in terms of economic and social loss. In more than 70 per cent of all these cases these disabling conditions have been caused by chronic disease, the "hidden plague," so long overlooked by both the public and the professions.

There is a serious social side to chronic disease and chronic illness. The chronic illness rate among families on relief is double that of families who are self-supporting. Among recipients of old age assistance approximately 50 per cent suffer from chronic illness. This does not mean that dependency causes chronic illness but rather that dependency is the result of continued chronic illness. In other words, the basic problem is not so much that of relief of dependency as that of prevention of the chronic illness causing the dependency.

The New York State Health Preparedness Commission after two and a half years of study has recently issued a report of its findings with recommendations for a long-range plan to meet the problems of chronic illness as follows:

1. A State Agency for administering a program of education, research, rehabilitation, and improvement of facilities and services for the care of chronic illnesses exclusive of tuberculosis and mental diseases (the latter were excluded from the report, as state programs now exist for the care of such patients)
2. The state should establish a chronic disease hospital center in each of five geographical regions, with such centers associated with and administered by general hospitals or medical schools
3. That provision be made in general hospitals for the care of the chronically ill
4. That emphasis be placed on rehabilitation in the proposed centers, general hospitals, and public homes
5. That the expense of such care for those unable to pay be shared by the state with local communities

In all this we must remember that health, with physical and mental alertness, is both the guaranty and the security of happy old age. We must know that, for adults, health is determined largely by the presence or absence of chronic disease and by the nature and severity of the disease when present.

We must study to know more about the processes of aging; to better understand the problems of aging people; to provide more prompt and adequate medical care for all who need medical care. We must realize that men and women, regardless of age, are a part of our human resources and that we cannot afford to waste our human resources; that chronic illness is the greatest single cause of dependency, and that only in middle life can we best prepare for that "last of life for which the first was made."

The aged and the chronically ill constitute the most neglected groups in our population. Aging is not a disease any more than life itself is a disease. The illnesses and disabilities of aging are a part of a way of life. As such they are, in large part, both preventable and recoverable.

The problem is one of preventive medicine and public health.

HOW TO GROW OLD GRACEFULLY

By HERMAN SEIDEL, M.D.

To date, our knowledge of the intricate processes of senescence is very limited and research and clinical studies are in their early beginnings. A considerable length of time will necessarily have to pass before a more comprehensive understanding of senescence will be acquired. At the present, textbooks, journal articles, and clinical reports contain mainly descriptions of the character of various changes present in the aged individual. Etiologic factors are generally unknown; at best, they are guessed at. Research and clinical study will be greatly stimulated as soon as the attitude of the medical profession toward gerontology becomes more aggressive.

The medical profession is still the victim of accumulated traditional conventionalisms and professional superstitions or, shall we say, escapes. Because of its inability to explain the many organic changes which accompany the advance of the years of the human individual, medicine has resorted to a vague terminology which may sound impressive but does not throw any light on the situation. For instance, the term *degenerative diseases,* which is supposed to cover a whole group of organic changes, does not bring any enlightenment and indeed is very questionable.

The medical profession has to learn to eliminate the general nondescript terms which explain nothing and tell even less. Such an attitude is indeed harmful because it pacifies the conscience of the physician and dulls his urge for searching out the underlying causes of the various changes and degenerations.

The problem of the aged is admittedly manifold; it is social, economic, and medical. These phases of the problem are admittedly complicated and are made more difficult by the prevailing public and professional indifference. Fortunately for the aged, their number is on the increase, and the very weight of their numbers is compelling the search for proper answers to the above problems. This article will touch rather lightly on a limited number of conditions which are amenable to correction and in being corrected

extend relief and comfort to the aged person, help him in his readjustment to his surroundings, and make him grow old more gracefully.

For more clarity, and to serve our purpose best, let us define the aged person we are to deal with as one who is undergoing or has undergone senescence but retains a fair measure of health and is subject to no striking disabling ailments. The aged ill are not included; they should be handled the same as the younger ill persons. Heart disease, kidney impairments, tuberculosis, malignancies, blood pathology, all these are practically the same whether they strike a person in his twenties or in his eighties. The person so stricken is a sick person and should receive all the benefits of the knowledge, skill, and facilities for treatment obtainable at the present time.

The aged person, even if not afflicted by marked disability, is nevertheless an unhappy person and beset by many problems. He is misplaced, he is superfluous, he is not wanted, he is not liked, he may even be hated. In a measure, he may deserve this discriminatory treatment; he is grouchy, he is complaining, he has bad manners, he is slovenly in dress. He may even have very obnoxious habits; he coughs and sneezes and moans when he should not, he hawks and spits on clean floors or carpets or rugs. His very stature becomes repulsive; his body is bent, his cheeks are sunken, his eyes may be tearing, his conjunctivae inflamed, his hearing impaired so that he is difficult to communicate with, and thus he becomes an undesirable person to have around. This picture is admittedly somewhat exaggerated and severe. Fortunately, not every aged person is afflicted with all the above enumerated handicaps and failings. It is also true, and rather encouraging, to note that of late there is a notable improvement in the appearance and carriage of the aging person. Still, there is much to be desired and to be improved. With the extension of the human span of life and the consequent increase in the number of aging persons, the need for greater knowledge in the management of the aged and provision for proper guidance during the period of senescence are paramount.

By utilizing even the limited knowledge and experience already at hand, most of the above defects and shortcomings can be either largely prevented or considerably corrected. It is not necessary to assume that the mannerisms and ill behavior of the aged appear on the basis of organic senile mental aberrations. Many of the be-

havior habits as well as the complaints of the aged have no real organic basis; for if there is any person who is a victim of psychosomatic states, it is the aged person. He is loaded down with frustrations, disappointments, griefs; his behavior habits and complaints may very well be defense mechanisms or attempts to gain sympathy, or they may even be measures of retaliation or defiance. The ill manners and bad behavior of the aged person may very well be explained on the basis of a defiant attitude that the aged person may assume. He resents being left out from the social or economic activities in which he played his role for many years of his life. He resents the segregation to which he is subjected. He resents even the overflowing kindness showered upon him, the commiseration and undue sympathy extended to him. Thus he assumes an attitude of futility and hopelessness. He transfers that attitude even to his outward appearance, and in that way he gets caught in a vicious circle. The treatment accorded the aged makes him defiant and spurs him to acts that make him even less desirable. He ultimately gives up the fight as hopeless and slumps into a state of utter carelessness and disregard of his surroundings, widening steadily the gulf between him and his family, his surroundings, and his friends, if he still has any.

The extrication of the aged from this vicious circle must begin before the pattern is definitely established. This, of course, is a matter for the psychiatrist to tackle or the psychologist or maybe, better still, the well-trained social worker. It calls for a large plan of re-education to begin in the earlier life of the individual. This re-education is to extend to the family and to the street, to the shop, to the factory—all the way through the social structure of present society. This re-education effort is no less important than the research in the fields of etiology and pathology of senescence.

This business of special treatment and segregation of the aged has its origin in erroneous thinking and misjudged kindness. In fact, it begins with the very innocent and otherwise praiseworthy courteous attitude to the older person. It surely is meant well when the younger folks try to curtail the physical activities of their elders. It is, however, erroneous and largely selfish when the industrialist eliminates the older person from his employ. The forced stagnation and inactivity to which he is thus subjected are responsible for most of the handicaps of the aged. It is inaction that is harmful to the

aging person and not action. Sedentary habits, general sluggishness, limitation of movement are the beginnings of the chain of developments, physiologic as well as anatomic, that ultimately help produce the above described horrifying features of the aged person. These can be largely avoided if not altogether eliminated by permitting the aged person to carry on as much as possible his customary activities and helping him retain some measure of usefulness to society. It is not at all unusual to observe bankers, industrialists, judges, religious leaders, and, shall I say, even hard-working physicians in their eighties who retain their mental faculties and their personal appearance and maintain full contact with world affairs mainly because of their economic security and their continued usefulness in their respective walks of life.

This much for the mental and psychic handicaps of the aged. Now let us turn to their anatomic and physical frailties. To understand these changes better let us try to describe the process or processes that bring about the various deformities of the aged. The human body is so constructed that it is rigid "to the back," posteriorly, and flexible anteriorly. The spinal column, beginning at the base of the skull and extending down to the end of the coccyx, forms the rigid support which maintains the human body in the erect position; extension is towards the back; flexion, to the front. It takes more effort and it requires more muscle strength for extension than for flexion. In the process of senescence, the muscle fibers lose tone and turgescence. These fibers have a tendency to shorten. As a result, the anterior muscles of the neck pull the chin towards the chest and the abdominal muscles which are involved in the same process pull the chest towards the pubis, producing the bending-forward posture of the aged person. Thus is obtained the long forward-protruding neck and kyphotic spine. The kyphosis of the spine is helped along by the loss of calcium which is encouraged by lessened activity and the action of the anterior spinal muscles against the posterior. There are additional regressive processes that cause distortion of the features and unattractive changes in the appearance of the aged person. The loss of fat behind the eyeballs will cause the retreating of the eyeballs in their sockets, neglect of proper care of the eyes will cause a series of pathologic conditions of conjunctivae, eyelids and eyelashes. The loss of the teeth or their decay will cause the person to resort to soft articles of food and thus curtail

the act of mastication. This in turn will cause atrophy of the facial muscles engaged in the act of mastication. It will cause even a shrinkage in the size of the jaw bones, particularly of the lower jaw. The absence of teeth will cause some of the facial muscles to be sucked in, and the wearing down of the teeth will cause a deformity involving particularly the lower jaw and chin, with the formation of unsightly folds at the corners of the mouth.

It is common knowledge to the orthopedic surgeon that the placing of a limb in a cast or immobilizing it in any other way will rapidly cause atrophy of the muscles involved. Inaction or even insufficient activity will do the same thing at a slower pace, but no less certainly. We also know today that in order to avoid hypostatic congestion, we must keep the patient either out of bed completely or, if for any reason this cannot be done, keep him moving about in bed. The chest surgeon will resort to a variety of methods to keep his patient's lungs active. He will make him cough and practice deep breathing and keep him out of bed to prevent atelectasis or lung collapse; action is life, stagnation is death.

With this knowledge at hand, we understand another regressive process that affects considerably the stature, posture, and health of the aged person; and that is the changes that take place in the contour of the chest. As already stated above, the flexor muscles of the skeleton counteracting the extensors cause a marked kyphosis interfering with free excursion of the lungs. The inactivity of the aged person causes shallow breathing, this in turn causing shrinkage of the lungs and flattening or caving in of the chest. Thus the vital capacity of the lungs is steadily diminishing until it reaches almost catastrophic proportions. Following in the trail of this diminution are a number of pathologic conditions: atelectasis of the lungs, chronic bronchitis, and finally bronchiectasis, with the opportunity for recurrent bronchopneumonias.

The above pathologic deformities are not inescapable or unavoidable; they may be both avoided and corrected to a considerable measure. The much venerated daily dozen still has its place and serves its purpose well if practiced right. Properly instituted physical exercises will prevent or delay or modify the existing deformities. These exercises should be so planned and organized as to strengthen the weakening muscles and to overcome the distorting effects of the activities of the flexor muscles. They should also be directed toward

limbering up the joints of the spine, neck, shoulders, hips, and limbs. Deep breathing should occupy an important place in these exercises. The daily practice of full breathing, even if only for a brief period, will keep the lungs expanded, will improve the flow of blood into and out from the chest, will break up and clear up plugged bronchi, and will keep the individual free from chronic coughs. Other important and useful exercises are: walking—a daily walk in the open is very helpful; swimming—in not very cold water, properly supervised; and selected dancing. There is a considerable number of games in which the older person may safely engage with the understanding that there should be no undue exertion and no undue speed.

The aged person is very much plagued by skin pathology, some of which may be only of cosmetic importance. There is an increase in the keratoid skin blemishes, for instance the large variety of warts—the plain and pigmented, the soft warts, and the very hard ones. These blemishes appear, as if to spite the victim, on the most conspicuous and inconvenient parts of the body—forehead, eyelids, cheeks, nose, chin, various parts of the neck, exposed parts of the chest, etc. The more serious skin disturbances are those that involve the tone and the turgescence of the skin, the softness, that is the flexibility or resiliency of the skin. The aged person will suffer mostly from a dry and scaly skin. These scales may be very fine, barely noticeable, or they may be profuse. The skin may be loose and relaxed, subject to intertrigenous dermatitic conditions. The skin of the aged is readily subject to various forms of atopic dermatitis and eczematous phenomena. The etiologic factors in the deterioration of the skin are probably numerous. It is blamed on hormonic deficiencies, particularly those of the thyroid and gonads; vitamin deficiencies, particularly Vitamin A; the rapid absorption of the subcutaneous fat, peripheral capillary arteriosclerosis causing a state of peripheral anoxemia with disturbance of the nutrition of the skin; and last but not least, general circulatory stagnation due to inactivity. These disabilities are on a par with the other disabilities enumerated above and may be prevented, corrected, or at least improved. The dermatologist is in a position to do a great deal in this branch of pathology. Many of the warts and pigmented moles can be removed by various electrotherapeutic and other measures. The skin may be generally protected by oiling, by proper bathing, and by nonirritating soaps and soothing salves. The general nutrition

of the skin can be maintained and improved by properly organized and regulated massaging, by proper physical exercises which will help restore tone to the skin, by properly organized diet, and by the administration of hormones or vitamins when their insufficiency is in evidence. When we relieve the victim from his skin blemishes we gain two objects, a cosmetic one and a physical one. The multiplicity and variety of unattractive or repulsive warts and moles and sebaceous cysts add to the unattractiveness of the aged person, make his presence in company less desirable, and, with his other shortcomings, isolate him even more from his family and friends. The removal of them makes him more acceptable, and the relief from the flabby, itchy skin makes the victim thereof less unhappy, less grouchy, and therefore a less undesirable individual.

Vigilance is the price of good health as well as of individual liberty. To continue in good health and to retain one's faculties in good functioning condition one has to maintain a constant watch over his body and its various departments and functions. The aging person will do himself a great deal of good if he will remain on the alert for any defects and institute proper treatment as soon as they make their appearance.

Deafness is largely controllable and sometimes curable. Hearing aids are as important as eyeglasses. The deaf person becomes difficult not only for himself but for those who have to communicate frequently with him. He should, therefore, without any delay or hesitancy, resort to that comfort and relief afforded by the hearing aid apparatus. There are many on the market, and one can have his choice of an appliance that may best suit his case.

The eyes require almost incessant care. Conjunctivitis, blepharitis, and lacrymal sac and duct infections require prompt attention; glaucoma and cataract formations call for expert treatment. Blindness may be delayed, mitigated, or averted by early and proper care.

The teeth are unfortunately the most neglected auxiliaries that we possess. They are neglected because of ignorance, because of general shabbiness, and in many cases because of the fear of the dental chair. The aging person mostly awakens to conditions when they are beyond repair, and extraction of the teeth with replacement by artificial dentures remains the only salvation. This, however, is not such a serious calamity providing it is not neglected and whatever repairs there are to be made are made early. The aging person who

is desirous to retain the proper functioning of his digestive tract and his facial contour and expression must correct his dental defects early. Absence of teeth will cause deformities of the facial contour by causing retractions and shortening of the facial muscles. The inability to chew will cause shrinkage of the muscles of mastication and even shrinkage of the jaw bones, particularly the lower jaw. The complete absence of the teeth, even the shortening of the teeth by wear and tear, will cause an approximation of the upper and lower jaws with unattractive folds forming at the corners of the mouth which may carry dribblings of saliva, with constant irritation of the folds. So, therefore, early correction of dental defects by replacement with properly fitted dentures, whether complete plates or partial plates, is a very effective measure to prevent facial distortions.

The plight of the aged and his physical failings have been briefly discussed. A few practical suggestions for their alleviation have been made. These may be summarized in the form of ten commandments for good and graceful living.

The aged person should:

1. Continue to work at his vocation and retain his accustomed position in society as long as possible
2. Avoid sedentary habits and inactivity, continue with whatever open-air activities or hobbies he may be accustomed to; if he has none, he should acquire some
3. Engage in systematic daily exercises, designed to prevent or overcome physical deformities; these should include the practice of deep breathing
4. Make full use of helpful gadgets such as hearing aids, eyeglasses, and dentures
5. Keep face and body free from unsightly blemishes
6. Always maintain self-respect and dignity, be jealous of his appearance, dress neatly, and retain good manners
7. Continue contact with buddies and lifetime friends, and learn to make new ones
8. Follow good body hygiene and sanitation; eat sensibly—a well-balanced diet of nourishing food
9. Seek medical advice at frequent intervals and carry out in full the advice given
10. Above all, avoid despair and an outlook of futility and in conclusion of the discourse: "Fear God and keep his commandments; for this is all that is required of man" (Ecclesiastes XI:13).

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REHABILITATION OF THE INDUSTRIAL CASUALTY

By ALEXANDER P. AITKEN, M.D.

In the past few years the term *rehabilitation* has appeared with increasing frequency in lay and medical literature. The term has come to mean a restoration to self-sufficiency of individuals suffering from a wide variety of lesions including tuberculosis, spastic and infantile paralysis, acute and chronic medical diseases, and the numerous lesions due to trauma. Rehabilitation of any disabled individual to be successful must not only deal with physical restoration to as near normal as possible but must also deal with the tremendous psychological effects induced by disease or injury and augmented by the loss of earning power.

Rehabilitation of traumatic lesions, particularly those produced by industrial accidents, was first brought to public attention by the British in the early days of the second World War. The desperate need for the conservation of manpower in Britain made early restoration of all industrial accident cases imperative. To accomplish this, it was recognized that not only was efficient and early surgical treatment necessary but of equal importance was early mobilization not only of the injured member but of the body as a whole. By the time this country entered the war, well-developed plans for early rehabilitation had been formulated by our armed services. The success achieved by the military in this respect is well recognized. The basic principles developed by the British and by our own armed services have served as a foundation upon which a few institutions have developed rehabilitation programs for the restoration of the disabled. Despite the ostensible values of such programs, their true worth is not yet fully recognized either by industry or the medical profession. Present-day surgery is primarily concerned with the treatment of the acute emergency. In this respect it must be admitted that tremendous strides have been made in the past few years. Marked progress has been made for example in the treatment of fractures. The present-day treatment of burns has done much not

only in the conservation of life but in the restoration of function of the involved member. The development of plasma and of the blood bank have gone far in solving the problems presented by shock and hemorrhage. The rapid strides made in the field of plastic and hand surgery have made possible reconstructive procedures heretofore impossible. The perfection in technique in all branches of traumatic surgery has been aided immeasurably by the development of penicillin, streptomycin, and the sulfa drugs. The modern surgeon can well be proud of the progress made in the past decade both in treatment of the acute emergency and in the field of reconstruction surgery. All too frequently, however, the advances of modern surgery are nullified by inefficient treatment in the convalescent period. Not until the surgeon recognizes the fact that his duty ends, not on the operating table, but when his patient is able to return to work, can full advantage be taken of the advances of modern-day surgery.

One of the best examples of inefficient after-care is the treatment of the amputee. Most surgeons are aware of the distinct advantages afforded by amputation at a suitable level for the wearing of a prosthesis. Proper closure of the fascia and skin have also been recognized. Few surgeons, however, give much attention to proper bandaging of the stump, and fewer still know anything of the fitting of the prosthesis or of instruction in proper ambulation. After the stump has healed, the amputee is usually left on his own. No supervision is given the selection, purchase, or fitting of the prosthesis. The limbmaker is primarily interested in the sale of the prosthesis and usually gives little if any assistance in instruction in its use. As a result of this lack of interest on the part of the surgeon and his failure to cooperate with the limbmaker, many amputees who could have been made self-sufficient never are rehabilitated. This situation could in large part be corrected by the development of amputation centers in all our larger cities and represents a need which must be fulfilled.

The length of time required for successful rehabilitation of an individual depends largely upon the type of treatment rendered immediately after the emergency has passed. Surgeons are most concerned with the treatment of the injured member and are prone to overlook physiological and pathological changes which occur in parts remote from the site of injury. Likewise the psychological effects of the injury are apt to be forgotten. Failure to recognize

the fact that such changes can and do occur in an individual may seriously delay the recovery of patients who have had adequate treatment in the emergency.

Injury, especially if it enforces recumbency, produces physiological and at times pathological changes not only in the injured member but in the body as a whole. The first of these changes is that of muscle atrophy. Although this is more marked in the injured part, it also develops in all skeletal muscles if the patient is forced to remain in bed. The second change is joint stiffness. The longer the period of recumbency, the more extensive both atrophy and joint stiffness become. It is not uncommon to see patients too weak to sit up and with joints too stiff to allow ambulation when the original lesions have sufficiently healed to allow them to do so. This leads to further prolonged recumbency, and a vicious cycle is thus developed. This prolongation of convalescence can in part be eliminated if the general body and muscle tone is maintained by the performance of simple exercises while the patient is confined to bed. Such exercises will also largely eliminate joint stiffness. There is usually no reason why such exercises cannot be performed at least in parts remote from the site of injury. Exercise not only benefits the patient physically but helps to develop a feeling of well-being which in turn bolsters morale. These exercises must be intelligently performed, and they must be supervised by the surgeon in charge to be of any practical value.

When immobilization is essential, atrophy and joint stiffness develop much more rapidly and extensively in the immobilized part. Therefore in splinting only the minimum of immobilization must be used. Parts uninvolved must be kept free so that they can be exercised. Casts applied for injuries of the forearm and wrist must never extend beyond the distal palmar crease, to allow full active motion of the fingers. Patients who must use slings must remove the arm from the sling and put the shoulder through its normal range of motion several times a day. Failure to do so may result in a "frozen shoulder." This condition, once it develops, is often much more difficult to correct than the original lesion.

If the injury is attended by swelling, additional precautions must be taken. The excess lymph in the tissues leaves a deposit of fibrin. Fibrin, in time, is replaced by granulation tissue. Granulation tissue is scar tissue and scar in the vicinity of a joint means loss of

motion. This is of the utmost importance in injuries of the hand, where swelling of the fingers is prone to occur. It is to be remembered that the collateral ligaments of the finger joints are relaxed when the joints are in extension. If these ligaments through the deposition of fibrin are allowed to contract in a position of extension then the restoration of flexion becomes extremely difficult, as flexion is blocked by the contracted collateral ligaments. Immobilization of the fingers in extension either through splinting or traction must never be done, particularly in the presence of swelling. The optimum position for immobilization of the hand is therefore one in which the fingers are kept partially flexed, with the thumb in a position of apposition. Similarly the ankle joint should rarely be fixed in equinus or a knee in complete extension.

When the lower extremity requires immobilization, muscle tone can be largely preserved by the simple process of muscle-setting within the immobilizing agent. This can be done without jeopardizing the injured part. Such motion increases the circulation to the part. Fibrin is removed from the tissues and thus the stiffness of joints due to the deposition of fibrin within the capsule and ligaments is largely eliminated. Most joints will show a surprising range of motion despite prolonged immobilization provided the part is exercised within the immobilizing agent and provided all joints proximal and distal to the site of injury are likewise exercised. This exercise, even simple muscle-setting, must be encouraged in all injuries with the possible exception of fresh tendon sutures. By exercising the body as a whole while in bed and by exercising uninvolved parts of the injured extremity and by muscle-setting within splints, much can be done to preserve general and local muscle tone and joint mobility during the period of recumbency or immobilization.

Our vigilance cannot be diminished when the patient is freed of all apparatus and allowed to become ambulatory. The final stage when the patient is allowed to return home is perhaps the most critical period of all, for failure on the part of the patient to use the injured member can still nullify the work done for him in the hospital. Many patients tire of the hospital routine and once they are freed of complete supervision are apt to neglect their exercises. Trips to the doctor's office three times a week for physiotherapy is a dangerous but often an unavoidable practice. Between trips, the

patient is apt to do nothing for himself and may become content to allow the physician or therapist to do the work for him. Patients must be made to understand that although the doctor or physiotherapist can be of assistance, the actual restoration of strength and motion must be done by the patient himself. However, it is the duty of the physician to make sure that a definite course of action is adopted and understood. The patient must know exactly what exercises he is to do, how long he must do them, and why he must do them. Failure to impress these facts upon the patient may seriously jeopardize the end result. It must be clearly understood that all exercises are to be done actively by the patient himself. Passive motion by the physician, physiotherapist, or some member of the family must never be done. Passive exercise by the patient himself must also be condemned. Such procedures as carrying pails of sand, hanging on doors, forcibly extending the elbow over a table by holding a weight in the hand are to be condemned. Although such exercises may appear to be active in nature, they are in reality passive as their object is to increase motion through forcible stretching. All such passive exercises, whether done by the patient or by his attendant, defeat the purpose for which they are intended. Stretching a joint beyond its range traumatizes the joint. Minute hemorrhages and swelling occur. This leads to further deposition of fibrin and scar formation, and resultant loss of joint motion. For this reason, all forms of passive exercise must be avoided.

Routine exercises, on the other hand, soon become monotonous, and patients must be constantly encouraged to perform them. A much more interesting and useful form of exercise is the use of work therapy. This is a form of treatment which has been generally overlooked, but it is of the utmost value, particularly in the treatment of traumatic lesions. Work in wood offers the best method of work therapy for the average patient. By the use of a hammer, saw, plane, or bit stock, a patient can rapidly restore both joint function and muscle power. Should the hand have insufficient motion to grasp these tools firmly, the handles can be padded to allow gripping. Sanding blocks constructed to fit the hand are of value in developing finger and wrist motions.

The best method of instituting work therapy is to formulate a definite program for the patient. Sewing cabinets, end tables, maga-

zine racks, etc., can be built upon simple lines. Construction of such articles with the use of ordinary household tools is not difficult, provided the patient is given some instruction and much encouragement. At first, only light or sedentary work may be done. Knot-tying, rug-hooking or braiding, simple wood-carving, or modeling in clay may be done in a sedentary position. As the work tolerance is increased, work may be done which requires standing, reaching, or bending. Laborers, for example, can be given logs to saw or they can shovel sand or gravel from one box to another. Between these boxes, a fence may be built, the height of which should be increased as the work tolerance progresses.

For the rehabilitation of a large group of individuals, the development of a work center is of the utmost value. A few such centers are already in operation throughout the country. These institutions usually have a complete physiotherapy department where all the modalities for applying heat are available, as well as whirlpool baths and paraffin baths. Stall bars, chest weights, and many of the various forms of resistance exercises, resistance bicycles, rowing machines, and similar equipment are a part of the standard armamentarium.

Perhaps the greatest advantage of such institutions is the workshop. Work of all types should be available. Apparatus such as jigsaws and sanding or grinding machines, operated by sewing-machine or bicycle jigs, is of great value, especially in injuries of the lower extremity. Painters and paperhangers, for example, are put to work at their trade. Machinists should be equipped with their own tools. By such work the patient not only restores himself physically, but psychologically as well. The creation of useful articles is a tremendous stimulus to all patients. The progress made is usually obvious to the injured workman, and the knowledge that he will again be able to return to work does more than anything else to restore his confidence.

In addition to work therapy, recreational therapy is of value. Games such as pool, ping-pong, horseshoe pitching, darts, etc., not only hold the patient's interest but keep him exercising.

To be convinced of the value of work therapy, one need but visit an institution where such therapy is available. There is much to be said for group psychology. No matter how seriously a patient

is injured, there is usually another just as badly handicapped. A spirit of competition soon develops, and competition is good for the patient who feels sorry for himself.

It is obvious that for successful rehabilitation we must keep our patients busy. They must use the injured part constantly, either through gymnastic exercises or through work therapy. If no large rehabilitation center is available, then the patient must be kept busy at home. This takes time and energy on the part of the physician, but this is just as much a part of adequate treatment as is surgical technique. If we note that a patient has failed to improve, we must find out why. Usually the reason is that the patient has failed to perform his exercise. He may have become discouraged at his lack of progress and feel that his exercises are doing him little good. If so, we must take time to discuss the whole situation with the patient. We must encourage him to continue his efforts. The patient may be having domestic difficulties because of his loss of earning power, in which case the situation must be discussed with his wife. Over-indulgent or unsympathetic relatives are often a source of interference with progress, and this source of irritation must likewise be eliminated. The patient must be given all help possible by the physician, for any influence which interferes with progress jeopardizes the end result. The physician must remember that once he undertakes the treatment of an injured individual, his duty is not completed until that patient is again able to return to work. A poor psychological end result is just as much a reflection on the doctor's ability as is a poor physical result. Only by careful attention to details in the operating room and by scrupulous and painstaking supervision during convalescence can the best results be obtained.

ABUSES AND PITFALLS OF PHYSICAL MEDICINE *

By RICHARD KOVÁCS, M.D.

Physical medicine in the United States during the past half-century has progressed from predominant empiricism through a stage in which the physiologic effects of the different physical energies became fully recognized and the need for a careful technic established and now is evolving quantitative observations and measurements to form the basis for analysis and theory. Like all departments of therapeutics developing through trial and error, it had to overcome fallacies, ignorance, and some outright misuse. Even at this advanced stage pitfalls threaten the unwary. The object of this presentation is to review some of the errors of the past and to point out safeguards for safe and efficient employment in the present.

Electrotherapy

Electricity, with its mysterious nature and sometimes awe-inspiring manifestations, has been used for curative purposes for many centuries by earnest medical men with due restraint, and by all shades of overenthusiasts and downright charlatans with abandon. Some of the notorious examples of the latter category have become a matter of historical record. To the American practitioner Elisha Perkins belongs the doubtful honor of having invented and exploited for the first time on a large scale a quack electric appliance, the electric "tractors": two little rods of metal which, it was claimed, would "draw disease from the body" when applied to it. Although discredited in due time, the "tractors" became the forerunners of many other fake devices, ranging from crude "electrical rings" and

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"magnetic belts" to "magic horse collars"—simple coils of insulated wire to be hung round the neck of the gullible—leading up to the rankest piece of quackery of our generation, the "electronic" reactions of the renegade physician Albert Abrams. It is little known in the United States that the rise and fall of Abrams' quackery was duplicated abroad by an Austrian layman, Zeileiss, using a contraption on the order of the "violet ray" outfits sold in drug stores a few years ago and named "oscillators." At the height of Zeileiss' popularity he administered some 3,000 treatments during an eight-hour working day, allowing just a few seconds for each patient, a procedure strangely reminiscent of the exploits of a "foot-twister extraordinary" in neighboring Canada, at $1 per foot, a few years ago.

The multitude of fake electrical devices exploited for healing and the ever present possibility of still bigger fakes represent a serious blot on the supposed intelligence of the general public. While it is true that in the long run all these fakes have gone down in disgrace, this occurred only after much sad disappointment to many sufferers and much expenditure in effort and time which could have been utilized much better along constructive lines. A tragic demonstration of the fact that in the hands of an inexperienced lay person even a supposedly harmless violet ray machine may become a weapon of death was furnished a few years ago by an accident reported in a newspaper story captioned: "Electric Shock Kills Pastor." The Reverend L. G. W., of Long Island, was found dead in his room, with a metal plate on the back of his neck, slipped under the collar and held in place by a scarf. A wire led from this plate to a radiator. On the deceased man's neck was the handle of a violet ray machine held by his left hand. Autopsy showed first degree skin burns and acute congestion of the brain, liver, and kidney. Reconstruction of the sequence of events showed that the deceased attempted to treat a pain in the back of his neck with the violet ray contraption. In the belief that "grounding" would increase the strength of the current, he rigged up the connection between the radiator and the metal plate on the back of his neck. No better way could have been devised to conduct the alternating current from the return ground through the heart area. Hence, as soon as the current flow was started it caused fibrillation of the heart, leading to instant death without giving the victim a chance to disengage himself from the fatal circuit.

Turning from outright quackery, it is instructive to review some of the empirical notions and unfounded assertions of apparently sincere clinicians during the evolution of electrotherapy.

As to the time-honored methods of galvanism and faradism, we can read in even comparatively recent times in a widely used textbook on electrotherapeutics, published by Haynes in 1896, such speculative statements as: "It is believed that the galvanic current penetrates the substances of the brain while the faradic current is distributed chiefly to the membranes"; also, "This rule has been given for the use of galvanism in insanity: recent cases and functional diseases are benefited by it while old cases and structural diseases resist its influence." No wonder that well-known neurologists recommended the use of electricity more or less in the form of a placebo or as a convenient means of disguising suggestive therapeutics and gave blanket recommendations for its use without specifying its form and without any reference to technic.

Static electricity had its greatest popularity toward the end of the last century and during the first ten years of this century. No office of any self-respecting physician in the large eastern cities seemed complete without the presence of one of these bulky machines. Static electricity was undoubtedly most useful through its mechanical effects, its condenser discharge being a precursor of the present-day low-frequency muscle stimulation. However, the most impressive and even to this day not fully explained effect appeared to be the high-voltage condenser discharge spreading all over the body. Ardent advocates of the static wave current would claim to cure with it everything from goiter to diabetes.

Low-frequency currents in their gradual evolution from the original faradic current and the simple make-and-break of the galvanic current to the present-day electronic production of every conceivable wave form gave rise to many misconceptions. An apparatus for faradic contraction of large muscle groups, first advocated by the Frenchman Bergonie, served for a long time as standard equipment in "fat-reducing" studios. It is being replaced these days by so-called "slenderizing" machines, using thermionic tubes to produce a surging current. In the past decades, manufacturers of apparatus have competed to turn out a bewildering variety of heterogeneously labeled low-frequency currents, with no clear-cut physiologic or clinical indications for their use. Modern research in the physiology

of electric muscle stimulation under normal and under pathologic conditions is now gradually clearing up much of this confusion and is offering low-frequency apparatus of definite control as to frequency, duration, and energy peaks.

The advent of high-frequency electricity during the second decade of this century completely overwhelmed the medical profession for a while. Manufacturers of apparatus and their sales agents were determined to leave no doctor's office without a diathermy machine. Traveling agents and itinerant lecturers carried on intensive sales propaganda, claiming all-curative medical and surgical uses for this new form of treatment. I vividly remember the early years after the first World War, when many misinformed medicos from country places would write in for special courses on removal of tonsils and hemorrhoids by surgical diathermy. As a result of misuse by the untrained, lawsuits for diathermy burns, medical as well as surgical, began to mount; in many cases after initial failures, diathermy machines were pushed into corners by their owners to gather dust.

Another spurt in exaggerated and (at times) false propaganda occurred when short-wave diathermy came into vogue fifteen years ago. Not only eager manufacturers but also enthusiastic medical workers asserted that these waves were different from all other physical therapeutic agents, especially from those of long-wave diathermy. One could read statements like this: "It is no exaggeration to call short-wave diathermy the greatest discovery of physical medicine since the work of Roentgen" and "Every normal tissue cell has a radio frequency of its own, and by application of short waves of proper frequency any abnormal tissue may be restored to function." Within three years some 1,000 articles appeared in the medical literature on "short waves." The flooding of physicians' offices with short-wave apparatus fostered the belief that use of such was all there is to physical therapy and led to the neglect of other indicated measures. No wonder that when, at the outbreak of the second World War, steps were taken to take a census of diathermy apparatus—first for purposes of national safety and later for the diminution of radio interference—it was found that some 2,200 hospitals and over 50,000 physicians, one out of every four physicians in the United States, possessed such an apparatus. Short-wave diathermy in the hands of the inexperienced becomes generally little

more than a glorified heating pad, applied in a hit-or-miss manner, because of the crude method of estimation of dosage and the lack of appreciation that treatment of different pathologic conditions requires clinical judgment and experience.

One of the worst things about diathermy propaganda became its abuse for the exploitation of the general public. Unscrupulous manufacturing and sales concerns have found a lucrative field in promoting the sale of small machines for "home use" by radio and other advertising. The fact that diathermy treatment is used by competent physicians in many chronic ailments is juggled by the crafty salesman with the notion that a lay person can diagnose his own illness, decide that it needs diathermy, and then proceed to apply it himself.

The laxity of the law governing radio advertising delayed effective protection of the public until inauguration of the Food, Drug and Cosmetic Act of 1938. The Federal Trade Commission has taken action against a number of these home diathermy concerns under this act, issuing "cease and desist" orders after due legal procedure. Members of this Congress are cooperating in furnishing advice and expert testimony to combat this and other forms of misleading advice and propaganda.

Light Therapy

In spite of the comparatively recent introduction of light therapy, quacks and borderline medicos were quick to capitalize on public interest and ignorance of the various forms of radiant energy. One of the announcements of a man with an M.D. and many other titles, from Los Angeles, shows a person "sitting on a filteray cushion and receiving filtered ultraviolet rays while doing Rithmo-Chrome breathing and inhaling oxygen vapor or medicated vapor and at the same time getting therapeutic effects of the magnetic forces of the earth, as he is grounded and facing exactly north and south." And there exists a certain Colonel, with another preposterous "Spectro-Chrome Therapy," who sells a device with color filters in front of a powerful incandescent lamp and proclaims a topsy-turvy scheme of these color combinations to cure everything from tuberculosis to cancer. After dodging and fighting "cease and desist" orders and lawsuits by federal authorities for many years, he was finally convicted of fraud by a federal jury.

The overemphasis on the beneficial effects of ultraviolet radiation led some fifteen years ago to extensive commercialization of ultraviolet-transparent window glass. These glasses were advocated, not only for hospitals and convalescent homes, but also for offices, factories, and schools, although it was evident that no benefit could be obtained unless everybody would don bathing trunks or similar undress and congregate next to the window under the noontime sun. While this artificial window glass craze died a natural death after a few years, another fad, the home use of artificial ultraviolet lamps, is still going strong. It seems regrettable that the barrier for advertising these lamps for lay use was ever let down.

Hydrotherapy

The Bavarian priest Father Kneipp was the first one to start a hydrotherapy fad when he advocated, some fifty years ago, walking barefooted in the dewy grass in the early morning. Whatever good this did it accomplished chiefly by getting the Victorian ladies out of bed early and making them exercise. "Hydropathy" was one of the chief selling points of the naturopaths on the continent of Europe. The fad of colonic irrigation, however, is chiefly an American product. It seems hard to believe that well-informed medical men would go on advocating the constant risk of passing ten feet of stiff tubing to wash out the intestinal tract when two feet of water pressure through a short tube would do the same. Today we hear no more about curing arthritis by colonic irrigation, and the number of colon laundry and intestinal flushing stations run by lay people is steadily diminishing.

Exercise and Massage

Exercise, so far as the general medical profession is concerned, has suffered rather by the lack of sufficient interest in its intelligent use. On the other hand, there can be no doubt that the commercially stimulated exercise "craze" by so-called physical culturists and self-styled experts holding forth in private gymnasiums or beauty establishments has done more harm than good. No special comment is needed on the gaudy and erotic type of exercise propaganda put out by the McFadden publications and those of the other "big muscle boys," as Fishbein aptly calls them. Many of these faddists advocate

their own "system" of spring apparatus, dumbbell work, rubber band stretching, and so forth—each one roundly denouncing the worthlessness of the other fellow's "system." The mass craze of taking morning exercises to the tune of the radio, evolved during the infancy of radio development, has fortunately passed away; but on beaches we can still see fat women wriggling desperately to carry on group exercise under the command of a muscular physical instructor.

Mechanical vibrators or other so-called mechanical exercisers, which are still being extensively advertised to the public, can do nothing that cannot be accomplished just as well with simpler apparatus or by voluntary exercise. At the same time severe injuries, rupture of the urinary bladder or of the appendix, and hernias have been reported by physicians as actual results of popularly advertised exercise apparatus. In general, the use of all exercise apparatus is monotonous, and most persons soon tire of its use.

The use of massage has also been considerably overexploited in past years. Until massage became a recognized part of modern physical medicine, there were a good many commercialized training schools in the United States which promoted the notion that it required no preliminary education and very little training to become a masseuse or masseur. "Swedish massage" made in the United States produced in many instances nothing better than bath house "rubbers"; in other cases certain too willing members of the female sex required the action of police departments to regulate their brand of massage. Commercialized "reducing parlors" in large metropolitan cities employ to this day low-paid slaves to satisfy the stout ladies who hopefully crowd in in the false notion that vigorous rubbing by the hour will "break up the fat."

On the other hand, the many years' neglect by the medical profession to employ massage and manipulation in its proper place has been largely responsible for the growth of certain manipulative cults. It is just as objectionable for one physician to employ one piece of short-wave apparatus in all his traumatic cases without any thought of proper massage and exercise as it is for another to tell his patients "go and get massage" without any specification as to technic. No properly trained physician should be hesitant to employ massage and manipulation himself to gain the advantage of palpatory skill and for moving the joints within an increasing range of motion.

The awakened national interest in physical fitness in connection with the second World War has resulted in extensive clinical laboratory studies for tests and methods for a national program of physical fitness. This should do away with many of the haphazard and commercialized forms of general exercise. The entry into this program of a large number of physical education graduates for reconditioning and occupational therapists for functional training has brought them near to the borderline of established therapeutic exercise. Such exercise must be administered by a technician trained in pathology and in the principles underlying the treatment of the sick and injured.

Comment

The misuses and fallacies enumerated as part of the evolution of physical medicine could be duplicated easily by enumeration of passing trends and fancies in all other departments of therapy. They could also be further extended by enumerating some physical treatment methods greatly extolled at one time or another for certain conditions and subsequently discarded because found wanting or superseded by better methods. For instance, uterine fibroids were treated at the end of the nineteenth century by destructive doses of galvanism applied by puncture through the vaginal wall; high blood pressure was claimed to be greatly benefited by autocondensation early in this century; a book was written on "diathermy in pneumonia" in 1923; for erysipelas, ultraviolet radiation was claimed to be almost miraculous in 1930, and so on. Bacon once said, "Time is the greatest of innovators," but he also might have said, "the greatest of improvers." Physical medicine has been on the steady forward march for the past twenty-five years, but its final evolution is by no means complete. One should also bear in mind Pope's adage:

> Be not the first by whom the new is tried,
> Nor yet the last to lay the old aside.

In its clinical application physical medicine requires the possession of sound basic information, an open but critical mind regarding newer methods and uses, and constant careful observation of the established rules of technic. For the guidance of the practicing physician and his technicians, adherence to the following general and basic safeguards in the practice of physical medicine is recommended:

1. A diagnosis must be established; in addition, the extent of anatomic and functional changes to be combated has to be ascertained. One must not think in terms of using a piece of apparatus for the treatment of a diagnostic term, but rather the aim should be to influence the specified changes in an individual patient by general medical treatment combined with suitable physical agents. As a basis of treatment, establishment of a definite diagnosis by all known methods is essential. Remember that uncertain abdominal pain treated by diathermy has turned out to be due to cancer of the pancreas or chronic appendicitis, and stubborn shooting pains along the leg resistant to galvanism have proved to be caused by a new growth in the spinal cord or by a ruptured intervertebral disc.

2. The physician must be familiar with the physical, physiologic, and clinical effects of the various physical energies and their indications and contraindications. After selecting the form of energy and combination of energies, he must be able to give a prescription of the technic to be employed; however, since physical medicine is generally a reaction therapy, the physician must stand ready to modify the initial prescription to suit the individual.

3. While in our mechanical age apparatus has become almost indispensable, physical medicine must not necessarily be identified with apparatotherapy. The relative value of the various remedial agents must be always taken into consideration and simpler methods not neglected for complicated or spectacular ones. For instance, for many traumatic conditions luminous heat is just as effective as the more cumbersome and risky methods of diathermy; simple wet compresses and packs and hot local baths, applicable at home, can do a world of good by themselves.

4. Treatment must be applied according to the established rules with due care, safety, and efficiency. Periodic checkup must be made as to the progress accomplished; treatment must be changed or discontinued when it is not fulfilling its object or is not further indicated. It is evident that any treatment by apparatus that is powerful enough to do good is capable of causing degrees of injury through improper technic, contributory negligence of the patient, or mechanical faults. However, serious injury will never occur unless several rules of treatment are neglected at the same time. The paramount questions in any case of alleged malpractice will be always: "Was the treatment indicated and properly prescribed?" and "Did the patient receive treatment according to accepted rules of technic?" The physician is no guarantor of a perfect therapeutic result, but he is responsible at all times for the proper and safe technic of application by himself and his office aids.

As to new types of apparatus or new procedures of treatment, physicians should seek the advice of qualified specialists in physical medicine

and in all doubtful instances of the Council on Physical Medicine of the American Medical Association or its Bureau of Investigation. Physicians who have not received basic training in the employment of physical energies should avail themselves of the now freely offered facilities of postgraduate instruction and clinical observation in competently directed departments of physical medicine of hospitals and other teaching institutions.

Discussion

Dr. Walter M. Solomon (Cleveland, Ohio): Of the many papers or articles delivered at medical conventions, only a few possess poignant or stimulating ideas, fewer still can express axioms forcefully or judiciously and least of all are those that have any sparkling or redeeming wit.

The paper Dr. Kovács has just delivered combines these and more. Of course, that is not unusual for him. Dr. Kovács always says something and that exceptionally well.

The fact that such abuses have afflicted physical medicine is not surprising, since a field such as this, more than the other branches of the profession, is prone to exploitation. What is amazing is that more damage has not been done. A noticeable change in the prevalence and effect of these abuses has occurred since the first World War and the credit belongs in no small measure to a relatively small group of men. Included in this group are such men as Coulter, Kovács, and Krusen. To be sure other names should be added. You all know who they are. It is the work and investigation of these men during the past that has guided physical medicine away from many of the pitfalls. It has been their judgment and wisdom that have utilized the best of the various methods. Their efforts were not always appreciated by the unwary or their purpose approved by the unscrupulous, but they persisted, with the result that physical medicine today enjoys recognition and respect.

Those of us who have entered physical medicine more recently fully realize our inheritance. For most of us these men were our teachers and our counselors, and, fortunately for us, today they still guide us wisely and help us. Not often have so few men influenced such a great number.

Therefore, to me this paper by Dr. Kovács is worth-while because it not only presents facts in an interesting and entertaining manner but indirectly demonstrates the power these men have exerted in a phase of physical medicine. Our debt to them is exceedingly great.

THE IMPORTANCE OF PHYSICAL MEDICINE REHABILITATION AS DEMONSTRATED BY THE EXPERIENCE OF THE VETERANS ADMINISTRATION *

By A. RAY DAWSON, M.D., AND A. B. C. KNUDSON, M.D.

With the expansion of physical medicine in the South, the physicians of this area are evincing increasing interest in the physical medicine rehabilitation program of the Veterans Administration. Therefore, we wish to discuss this subject in general terms and point out where the Veterans Administration's experiences have shown an acute need for physical medicine in the Southland.

We will briefly give you a picture of the organization of the Physical Medicine Rehabilitation Service in the Veterans Administration (2, 3). General Bradley, upon assuming his duties as Administrator of Veterans Affairs, realized that in order to meet adequately the medical needs of veterans, physical medicine rehabilitation must be stressed and existing treatment facilities greatly expanded in scope. He was very definite in his desire that a complete medical rehabilitation program be inaugurated in each Veterans Administration hospital so that every sick, injured, and disabled veteran could be rehabilitated for purposeful living and a normal life compatible with his disabilities and abilities. As a result, the Physical Medicine Rehabilitation Service was established (8, 9, 10). Dr. Paul R. Hawley, Chief Medical Director, appointed Dr. Donald A. Covalt to the position of assistant medical director for medical rehabilitation to direct this service. Dr. Covalt left the Veterans Administration this month to join Dr. Howard Rusk on the faculty of the New York

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University School of Medicine and to assume charge of a civilian rehabilitation institute in New York City.

The world is familiar with the remarkable advancements made in Veterans Administration medical care since the establishment of the Department of Medicine and Surgery in January, 1946. Truly, it has made possible a medical service second to none for our veterans. As a part of this medical service, physical medicine rehabilitation provides a treatment program to effect the broader aspects of total rehabilitation, geared for treating the whole man from the bed to the job, and for preparing the veteran to live normally in his community. Physical medicine includes the following components: (a) physical therapy; (b) occupational therapy; (c) corrective therapy; (d) manual arts therapy; (e) educational therapy. Other activities include audiology and speech correction, blind rehabilitation, and tuberculosis rehabilitation.

All rehabilitation therapies under this service are medically prescribed for the individual as part of a therapeutic regime emphasizing that (a) the whole man must be treated, not merely his disability; (b) all rehabilitation procedures must be commenced early; (c) each step in the program for the individual patient must be progressive; and (d) all phases of the patient's schedule must be integrated in such a manner as to be purposeful.

Physical medicine as practiced in Veterans Administration hospitals utilizes all the modern scientific technics and broader concepts of this specialty, as outlined by the Council on Physical Medicine of the American Medical Association, and conforms with the principles formulated by the Baruch Committee on Physical Medicine. Physical therapy is administered by therapists qualified in accordance with the standards of the American Medical Association. Occupational therapy is likewise modernized to fit into the total design of rehabilitation. Corrective therapy provides a program of reconditioning exercises to prevent deconditioning and muscle atrophy and to assist in the restoration of function. The manual arts therapy program uses projects of an industrial, agricultural, or prevocational nature therapeutically. Educational therapy furnishes approved educational courses as mental and motivational therapy. All therapies are directed toward functional activities to restore usefulness.

Our Veterans Administration consultants in physical medicine, all nationally known physiatrists, have served in an advisory and

guiding capacity in the development of this service. On the basis of their recommendations, training programs have been established, and residencies in this specialty exist today in many of our hospitals. In addition, several research projects are under way.

Medical rehabilitation boards in our hospitals should be described for a moment. Such a board is a definite factor in shortening the time of hospitalization for each veteran considered by that board during his stay in the hospital. It exemplifies the mission of teamwork in the recovery of the whole man. The physiatrist serves as captain of the team of specialists composing the board. This team of hospital staff members carefully considers every tangible aspect of the veteran's illness in connection with personality, his home environment, and the civilian occupation in which he was previously engaged, all directed toward the achievement of the most suitable vocation for him upon his discharge from the hospital. Because each board member contributes to consideration of the veteran according to his particular specialty, the possibility of error in guidance is reduced. This avoids repetition and loss of time in converting to new objectives. Thus, the veteran-patient is equipped upon discharge to return to his community ready to make the maximum adjustment physically, mentally, socially, and vocationally.

We wish to be sure that disabled veterans will be able to compete successfully with nondisabled workers and that their disabilities will not affect the quality of their work or hinder their opportunities for advancement. Physical medicine rehabilitation not only speeds the recovery of these patients, thus shortening hospitalization, but also reduces the number of readmissions for further treatment. The accomplishments of this service have served to waken an interest in the rehabilitation of the seriously ill and severely disabled on the part of both the general public and the medical profession (4).

The interest on the part of the medical profession in the need for physical medicine is abundantly shown in a survey of Veterans Administration hospitals in Branch Area No. 4. (This area comprises the States of Maryland, Virginia, West Virginia, and North Carolina and the District of Columbia.) The survey revealed that in the general medical and surgical hospitals, 29 per cent of the patients received physical therapy in the forms of hydrotherapy, dry heat, light, or massage; 32 per cent of the patients received corrective exercise therapy; and 17 per cent received occupational therapy. It

is reasonable to assume that, because of the particular population from which we draw patients and because of the war injuries which we treat, our needs for physical medicine will be high. When these percentages are discussed with physiatrists having well-developed departments of physical medicine in civilian hospitals, it is interesting to note that their patient-load has increased and is still increasing; and that as the hospital patient census of injuries and chronic diseases rises, the need for physical medicine mounts in direct proportion. As this increasing need for physical medicine is becoming apparent in treating the civilian as well as the veteran population, this aspect deserves consideration.

The Baruch Committee on Physical Medicine (1) after a careful survey estimated that there were 23,000,000 persons in the United States who were handicapped because of disease, injury, or maladjustment, or from former wars. This estimate seems astronomical at first glance, but when we realize that the two outstanding factors are increasing age in the population and a rising accident rate, the estimate appears reasonable, if not conservative.

The increasing age level of our population has been a matter of great interest to medicine in recent years. Metropolitan Life Insurance Company statistics (5) reveal that the median age (that age which divides the population into two equal groups, one half being younger and one half older than the median) is steadily increasing in the United States:

> At the beginning of the 19th century the median age in this country was about 16 years. Three quarters of a century later it had reached 21 years. By the turn of the century the figure had advanced to virtually 23 years, and by 1940 to 29 years. Thus the median age of the population in the United States has increased as much in the four decades after 1900 as it had in the eight preceding decades. In 1900 there was not a single state in which the median age was as high as 30 years; in 1940 there were 18 states in this category. The proportion of people 65 years of age and older has jumped from 4.1 to 6.8 per cent between 1900 and 1940, and will very likely exceed 13 per cent before the end of the present century.

Thus this becomes an important factor in our medical thinking and planning. This trend will continue for many decades. More and more, activities must be concentrated on the diseases and conditions which affect the older ages. It has been estimated that 70

per cent of persons permanently disabled are at age forty-five or higher. We as doctors must meet the challenge which thus confronts us. By utilization of rehabilitation methods we will not only add years to the expectation of life, but also increase the productive capacity of the country.

The significant success achieved in reducing the death rate in childhood has had a tendency to distract attention from the large decline in mortality of the older age group. There has been a marked reduction in mortality among older people in our population. The outlook is that death will be postponed, and we will have more work in the field of geriatrics.

Another aspect for consideration is the longevity of the wage-earner. The wage-earners are the backbone of our nation and of our medical practice. According to Metropolitan Life statistics (6),

> The expectation of life at birth among American wage-earners and their families established a new historic record last year when it passed the 65-year mark. This average length of life in our industrial population has increased by five years in the decade since 1936, and by more than ten years in the two decades since 1926. The improvement in prevention of accident and disease and of treatment has added practically 19 years to the average length of life of this important segment of our population.

I will mention briefly the disease poliomyelitis, which remains unusually prevalent from year to year.

However, the trend of mortality from this disease has been downward over the past thirty-five years. Although the interval between widespread outbreaks does vary, it is interesting to note that a four-year interval of low incidence preceded two of the severest epidemics on record, namely, those of 1916 and 1931, and also the most recent one, that of 1944 (Metropolitan Life Statistical Bulletin). Throughout the years physicians have increased their ability to diagnose the disease and there have been many improvements in the method of treatment, thus saving more lives to be rehabilitated if they are to be again useful to society. The Metropolitan Life Insurance Company says (7):

> The four years from 1943 through 1946 constitute the longest period of sustained high incidence of this disease in the history of the country. In 1946 alone there were more than 25,000 cases, a figure which was

exceeded only once before—in 1916—when more than 27,000 cases were reported. As might be expected, with earlier diagnosis and better treatment the recent increase in cases has brought with it a steady rise in the number of children and young people with crippling impairments resulting from the disease. This disease, poliomyelitis, is the greatest single cause of crippling in childhood and is responsible for almost one fifth of all orthopedic handicaps at ages under 21. It is estimated that the number of children and young people in the United States crippled by poliomyelitis has increased about 10 per cent in the past two years and almost 45 per cent in the past seven years. As of January 1, 1947, it is estimated that there were nearly 74,000 persons under 21 who were crippled to some degree by this disease.

What is the economic loss to our country of the inability of disabled individuals to work? Personal injuries and disease resulting in permanent impairments take a very heavy toll annually, not only in human suffering but also in loss of productive capacity. Each year about one third of a million persons in the United States become permanently impaired, either partially or totally, through accidental injury alone.

Dr. Howard A. Rusk (15, 16) has recently compiled the following figures:

1. One person out of every twenty is disabled by sickness or accident in any twenty-four hour period.
2. Twenty-five million suffer from chronic ailments, many of which are disabling, with 50 per cent of the sufferers under 45 years of age.
3. One million deaths occur yearly from chronic diseases.
4. Ten million days of disability each year result from chronic disease.
5. Those suffering disabilities from accidents number over 10,000,000; from mental diseases, 8,000,000; and from diseases of the heart and arteries, 6,850,000.

Dr. Rusk says that a few of the economic problems connected with these figures are:

1. About 97,000,000 people in the United States need financial help to meet the cost of serious illness. This averages two persons out of three.
2. The estimated annual cost of sickness and accidents in loss of earnings due to sickness and premature death is $8,000,000,000.
3. The total hidden costs of sickness and disability, including wage loss to workers, and costs to industry, totaled more than $15,000,000,000 in 1943.

The large majority of the chronically ill and disabled in your communities will continue to remain in their own homes under your care or whatever care the community may offer. This care must, therefore, for our nation's sake and for humanity's sake, include modern rehabilitation procedures so that patients can carry on all the productive activities possible within the limits of their abilities.

It has been proved that rehabilitation pays off economically! In our Veterans Administration hospitals we have shown that medical rehabilitation is economically sound and has actually saved the government thousands of dollars. Just as shock and hemorrhage, important factors in the high mortality from severe wounds, are now successfully combated by use of plasma for transfusions, so new rehabilitative technics have acquired success which will be of enduring benefit if we but apply them. These advances in physical medicine rehabilitation, stimulated in many instances by military necessity, will constitute one of the important gains from the recent war. The advances made in the past few years of maximum employment in the placement of physically and mentally handicapped individuals in productive jobs must be consolidated; they must not be lost or even reduced. The expenditure of a few dollars on retraining and rehabilitation of the sick and disabled pays high dividends.

The experience of the Veterans Administration outpatient service, particularly at regional offices, has demonstrated an acute need for the practice of physical medicine in the smaller communities and the use of physical medicine procedures by general practitioners and other physicians.

With the development of physical medicine, as with any other specialty, there has come a simplification and better understanding of certain procedures along with the development of new and highly technical procedures. The simple procedures are available to any general practitioner devoting a reasonable amount of time to studying and understanding them. The highly technical procedures must, of course, be administered by a physician having a thorough knowledge of the physical means at his disposal and the therapeutic indications for their usage.

Dr. George M. Piersol, branch consultant to the Veterans Administration in physical medicine, has stressed the vital importance of this specialty and the need for better cooperation between physiatrists and general practitioners. He says (14):

Most physicians have failed to take much interest in this branch of medicine, owing to lack of information on the subject. Too many practitioners think of physical medicine as consisting of little besides heat and massage and do not have a clear concept of what can be done or what needs to be done when they refer a patient to the physical therapist.

He points out that in a survey made at the department of physical medicine of the Hospital of the University of Pennsylvania over a twelve-month period it was shown that 57 per cent of the conditions most often treated were chronic arthritis, neuromuscular pains of undiagnosed origin, strains, and fractures. Disabilities due to trauma were high among the male patients. Again he says (10):

There were 111 separate diagnoses submitted with 1,239 patients, counting all types of arthritis, fractures, back pain and strains as a single unit. Simple forms of treatment readily available to the general practitioner and requiring a minimum of elaborate apparatus, such as exercise, massage, and heat, represented 71.7 per cent of all the treatments given.

Today many of our schools of medicine have a department with a well-qualified physiatrist in charge. Other less fortunate schools are looking about for a man to establish such a unit.

We must emphasize that it is widely believed that effective physical medicine procedures require the use of complicated and expensive apparatus, but this is incorrect. This error exists because of the omission in the past of this specialty from the curricula, or lack of emphasis in teaching physical medicine in our medical schools. Many procedures in physical medicine are comparatively simple, requiring no elaborate equipment, and are readily adaptable for use both in the office and in the home.

Dr. Frank Krusen (11, 12, 13) has repeatedly emphasized this phase of treatment, and the Mayo Clinic gives instructions for home care to its patients. Much equipment can be made with a little ingenuity, patience, and imagination. However, as Piersol points out, the successful use of these methods depends on the physician's doing his part, such as (a) making the correct diagnosis; (b) having accurate anatomic knowledge of the part involved; (c) being familiar with the technics offered by physical medicine; (d) having a thorough understanding of the physiologic reactions which these procedures bring about in the body as a whole as well as locally; and (e) possessing technical skill and manual dexterity essential to proper

administration of the indicated treatments or teaching of these to the patient.

In conclusion, the experience of the Veterans Administration has shown that physical medicine is an integral part of the necessary treatment that should be provided by modern medical practice. The demand for this service is increasing. We have proved in the Veterans Administration that where an adequate and complete physical medicine rehabilitation service is provided, four important accomplishments result: (a) the patient's days of hospitalization are reduced; (b) residuals of injury or sickness are lowered; (c) the patient is assisted to a more satisfactory social and economic adjustment compatible with his disabilities; and (d) readmissions are reduced.

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PHYSICAL AND FUNCTIONAL REHABILITATION BY PLASTIC SURGERY

By JAMES BARRETT BROWN, M.D., AND MINOT P. FRYER, M.D.*

The last war served as the main stimulus to interest the whole medical profession in rehabilitation. It took vast numbers of potentially battered and smashed futures to enliven this subject and to focus attention on the physical and mental reconstructive requirements of the individual patient. In many fields of medicine and surgery this interest made necessary new procedures, but for plastic surgery it showed primarily that what had been done for few could be done for many. These are the methods of treatment which in most instances have been carried over from a civilian practice to the rehabilitation of the war injured.

The rehabilitation of the burned patient begins with his initial dressing and continues until he resumes his place in society. It is to be assumed that he will receive the very necessary supportive therapy, therefore attention will be immediately focused on covering of the raw surface, first by a dressing and later by skin, on the repair of late contractures, and on the resurfacing of specialized areas.

The use of a "coagulum" such as tannic acid in the treatment of the open, contaminated, infected, or potentially infected area, which all burns are, has been generally discarded everywhere. The tough, leathery eschar neither invites epithelial regeneration nor prepares a wound for early grafting.

When the full thickness of the skin is destroyed by a burn over a large area, an open wound results, and, unless there is early replacement of the lost skin, healing will occur by contracture of adjacent tissue and by "scar" epithelium, or permanent healing may never occur.

Almost any treatment that promises as little work as possible is apt to become popular, but so far no application has been found that will produce normal skin. When it is claimed that a certain preparation will insure complete healing without scarring, it apparently is

not realized how healing occurs in superficial and in full-thickness losses of skin.

If there is rapid healing and return to function following a burn, without much scarring or deformity, this simply means that the full thickness of the skin has not been lost and that regeneration has occurred from the deep glands in the derma, much the same as occurs in the donor site of a thick-split graft.

It has been observed that these struggling cells are easily killed by chemical, bacterial, or mechanical trauma. Therefore, it appears that cleanliness, protection, and the avoidance of strong chemicals will best promote this type of healing, and these objects of treatment seem to have stood the test of time.

The local care of open wounds has for its object the cleaning of the areas as quickly as possible, so that the lost surface may be restored with skin grafts before contractures have occurred and before debilitation and pain have developed beyond control. Soap and water cleansing and surgical drainage accomplished by saline dressings or saline baths usually suffice, but antiseptics, Dakin's solution, or sulfanilamide may be thought necessary.

A fundamental of dressing all raw wounds is that old linen or very fine mesh gauze be placed next to the surface so that granulations will not grow up through the coarse meshes of overlying gauze, stick, and cause pain. When cellulitis is controlled, grease dressings on fine gauze or linen can be used.

A firm pressure or elastic dressing may be of great advantage, and discolored, edematous granulations may be flattened out into a firm, bright red surface without chemicals or without cutting them away.

The continual saline bath may have the important result that most secondary contractures will be straightened out by the voluntary effort of the patient without the use of traction or restraints. Many patients are extremely grateful for the bath and realize their first comfort in it, and it has occasionally been a life-saving measure. If there is any unfavorable reaction to the bath, it is omitted.

It seems impossible to sterilize large open areas, but careful evaluation of the general condition and of the gross appearance of the granulations and surrounding tissues usually suffices for the determination of the time for operation, and many deep burns are ready for grafting in three weeks' time.

The general condition of the patient is directly reflected in the wounds and of course should be considered primarily in all instances. Gentleness in all manipulations is always an essential of care.

A graft of from one half to three fourths of the thickness of the whole skin is perhaps the most useful in making repairs of raw surfaces. This graft is designated as a "thick-split graft." (The original Ollier-Thiersch graft was cut just through the papillary layer of the epidermis, which made it very thin, without any derma; a thin pad of derma happens to be a most important part of a skin graft.)

When large areas are to be covered, it is necessary to obtain large thick grafts without cutting entirely through the derma, so that healing of the donor site can occur rapidly without leaving any further defect. The deep glands left behind in the derma of the donor site "de-differentiate" into squamous epithelium and cover the surface in from six to eight days. This can be shown microscopically and is a very interesting study in wound healing. It might be considered as a reverse of the process of carcinoma formation. As many as five "crops" of skin have been cut from the same area and as little as nineteen days has been required for the production of a new surface suitable to supply another crop. Also there must be careful protection of the donor sites.

The most necessary equipment in obtaining split-skin grafts is a very sharp, long knife of the amputation variety. Large grafts may be cut rapidly, and the larger they are the more easily they may be applied. Grafts up to eighteen by five inches may be obtained from suitable thighs. With some practice the thickness can be easily graduated with free-hand cutting; one should realize that the thickness of the graft should depend on the relative full thickness of the skin of the area. This thickness varies greatly in different parts of the body and in different patients, so that a set thickness cannot be described for this graft. The essential is that it be cut thick, but not too thick to prevent the donor site from healing promptly.

With mechanical aids such as the dermatome, or the suction retractor, fairly large grafts may be cut even from the abdomen. But patented equipment does not cut the graft, and care has to be exercised not to cut through the derma.

These grafts are applied to the prepared area and held at about normal skin tension with No. 000 silk sutures all around. In suitable

areas the grafts may be spread out and then "snubbed" in place with a sterile fine mesh roller bandage.

Either saline or grease fine mesh gauze dressings are used according to the degree of contamination thought to be present, and pressure is obtained over the area with mechanic's cotton waste bound on firmly with heavy gauze rolls. The application of pressure to the dressings is a fundamental as important as any other operative step. Since the primary aim in the local treatment of a burned area is preparation of the wound for early grafting, the use of waste cannot be overemphasized. This material is inexpensive, can be autoclaved, and can be put directly on the fine mesh gauze. It can be, and is, used anywhere that firm, steady, even pressure is required—on granulation tissue, skin grafts, or any operative site.

Many methods of cutting split grafts have been described, and different terms have been applied to the graft. If the full thickness of the skin is not taken, then the skin necessarily has been split in two and the graft is at least anatomically a "split" graft. To have a new type of skin graft would require a new type of skin, but, as new authors realize how utilizable the split graft really is, enthusiastic reports are made with new terminology.

Full-thickness grafts are not put over large raw surfaces because the size required is prohibitive, and the take of a full-thickness dissected graft is not as certain in contaminated fields as is that of the split graft. This graft is used extensively in healed deformities in which a clean operation can be done, mainly on exposed surfaces, and the healing seems to give a better chance of immediate return of the area to normal. Even in these grafts, pigmentation may be troublesome and require the use of cosmetics.

There is a large field of usefulness involved in this work and large room for improvement, such as simplification of effort, study of the effect of local refrigeration, and the possibility of getting the homografts to survive. At the present time, with careful removal of the grafts so that prompt healing of the donor site occurs, most patients can supply enough skin for their repair. As many as five crops have been taken from the same area, 220 square inches have been transferred at one time, and a total of 600 square inches has been grafted in a single patient. The laborious use of full-thickness grafts and more tedious use of pedicle flaps in many instances can be avoided.

In spite of the best possible care, when there has been full-thickness loss of skin in a flexion area a contracture often results in healing, as in the neck and axilla. In axillary reconstructions, the thick-split graft was first proved to be adaptable for large burn losses. It had formerly been stated that full-thickness grafts or flaps were necessary for such gross areas, whereas thinner grafts should be used around such places as the face and eyelids. However, after repairing twenty axillas with split grafts, it was deduced that the above rule could be turned around, so that the somewhat thinner split graft was adaptable to powerful flexion areas, where activity could combat second contraction, whereas, in delicate, soft, less powerful areas such as the lids and face, the best results would come from setting in the thicker full-thickness grafts that would resist the deep contraction of the base somewhat better.

By using split grafts in axillas, a total reconstruction can be done in one or two operations and only a few dressings are necessary, whereas to use a back flap would require ten to fifteen operations, and to use sufficient full-thickness skin would leave too much deformity in the donor site.

On fresh fat bases in the forearm of girls, one of the main problems is met, as the thick-split grafts will tend to wrinkle badly. For this reason full-thickness grafts are sometimes employed here.

Restorations of hands are most important, and they can be successful, even in severe deformities.

In face defects and contractures a rule might be adopted to use full-thickness grafts and then deviate from that to the selection of split grafts when possible, such as for some ectropions and over the nose. Practically the whole cheek may be set in at one operation, but a large expanse of supple skin for normal facial movement is necessary, and secondary operations may be necessary to let in more skin or to relieve pull on an eyelid. The same is true of flaps too. The use of a full-thickness graft from the neck to the face or eyelid has been found to be most satisfactory.

Contractures of the neck are frequently encountered and produce very crippling deformities. There is difficulty of getting a take because of laryngeal movement, but with care, free grafts will grow here and are apt to give a better neck angle than a pedicle flap replacement. Extensive deformities are freed carefully, the chin dis-

sected up and the defect covered with split grafts if it is too large for a full-thickness graft, as it usually is. The secondary ridges and contracting deep bands which are apt to form are freed secondarily, and the final important neck angle is usually obtained by putting an elliptical full-thickness graft across from side to side after a suitable opening.

Full-thickness grafts from the neck and the clavicular region have been found to give superior results in the repair of facial defects. The amount of skin available is limited, but there is enough for eyelids, the nose, and about the mouth.

Two main advantages are improved function and color. The graft was first used on the lid, and many full replacements of the lid skin hardly can be distinguished at a distance of only two or three feet. The color is nearly always close to that of the normal face, because of the good color of the neck skin plus the good function that is possible and to the actual extra thickness that these grafts have over the usual thick-split or full-thickness graft. None of these grafts so far has had to have pigment injection for color matching, whereas dead whiteness or darkness of other grafts often leaves much to be desired. There is natural redness in these grafts not found in other skin, and this redness is the reason for the match with the surrounding skin. (On a burned face that has healed to a dead white, these grafts give a noticeable contrast, although they are the closest to normal.)

The second advantage is softness and therefore function. This function, of course, is that of underlying muscles, but these grafts heal in so soft and have such thickness that the best kinesis of grafted areas can develop. This property, again is best expressed in eyelid repairs, where hard, board-like scars of gasoline and phosphorus burns have to be literally dug out of the lids, and those which run across from one eye to the other over the nose. When these areas are covered with the neck grafts, there is often a dramatic relief of scar fixation and return of softness and function.

The good function results from the thickness and softness of the graft, and possibly also the character of the skin, which in its natural habitat overlies a platysmal muscle. This point has not been proved so far, but an eyelid's being soft, of normal color, giving normal function, healed in, with practically no edge scar, in two to three weeks after grafting brings up the platysmal idea.

Late function is excellent, as there is minimal contraction of the graft bed when these grafts are used.

This graft is usually superior in color and function to those from other preferred areas, such as the mastoid and inguinal regions.

The main areas for use are on the lids, in the canthal regions, about the ala, over the nose and about the lips and angles of the mouth.

Donor sites can be closed, left open to granulate, or grafted. They may make troublesome scars for a while, but no permanent severe trouble has been seen. Large scars would be objectionable in women, but this does not preclude the use of small grafts.

Facial Paralysis

In paralysis of the facial nerve, the temporal muscle and its fascia can be used for supporting the drooped tissues of the face. For this the muscle is connected to the face by loops of fascia lata, and it can then straighten the deviated mouth and columella nasi and support them in the normal position. The nasolabial fold is often reformed, and a small amount of movement may be produced by the muscle, which is controlled by the fifth cranial nerve. Patients are grateful also for the improved control of the mouth, which permits them to smoke, whistle, and eat and drink in public.

The procedure does not disturb the patient much and does not impair the functions of other nerves or leave visible facial scars. Five or six days' hospitalization is recommended, with an additional week of outpatient care. Worth-while improvement is usually noted at once.

The operative intervention is indicated when the paralysis of the facial nerve seems to be permanent and when direct suturing, nerve grafts, or anastomoses are not feasible—or when these have been tried and have not produced the desired result. It may also be used primarily in conjunction with any of the nerve operations.

Strips of fascia lata 4 to 8 mm. wide are obtained in the longest lengths possible from the iliotibial band, by use of the Masson or other stripper. The temporal incision is made in the hair-bearing area and is carried down to the temporalis fascia. A small stab opening is made in the middle of the upper lip and another one in the lower lip 1 to 2 cm. outside the angle of the mouth and 1 cm.

below the vermilion. The first strip is then passed subcutaneously from the temporal wound down through the face, out of the stab opening in the upper lip and back up to the temple by a different route, so that it forms a loop and encircles a good deal of soft tissue in the lip. Another strip is passed similarly down to the stab opening in the lower lip and back, care being taken again to avoid puncturing the buccal mucosa. The fascia may be carried through the face by a fascia needle or by an ordinary long sack-sewing needle.

After being placed, the loops are worked back and forth a little to take out any slack and the temporalis fascia is opened about 1 inch (2.5 cm.) above the coronoid to expose the muscle fibers. A heavy full-curved fascia needle is used, and one end of each strip is passed around a substantial segment of muscle and tied to the other end by a surgeon's knot. The knots are pulled taut with the mouth in considerable overcorrection and then fixed by taking several interrupted silk stitches through the knots and by sewing the ends of the strips down. A pressure dressing is applied to cover the eye, ear, and entire side of the face; this helps materially in getting smooth early healing.

Ear Reconstruction—A Direct Method

Losses of the external ear are numerous and often complicate other serious defects so that plans for rapid and simple restoration are important, without the use of massive distant flaps or great numbers of operations. The losses result mostly from burns, gunshot wounds, traffic accidents, and freezing. Congenital absence and loss from neoplasms account for a relatively small but important number.

When enough surrounding scalp tissue is present, a fundamental plan can be used of freshening whatever is left of the stump of the ear and implanting it carefully under a scalp flap behind and above the ear. When union is firm (two to three weeks), an adequate piece of costal cartilage is put in under the scalp flap, in the desired shape. In another three to four weeks, when there is no swelling, the flap and cartilage are dissected free of the skull so as to leave soft tissue attached to the under surface of the cartilage and to the skull. This procedure requires accurate, careful dissection. The resultant double raw surface is grafted with a single large thick-split graft. Later adjustment may be necessary. If there is not adequate

size, or the patient requests it, a small tubed flap from the immediate neck region can be added for the helix; this, however, is seldom requested.

With this simple plan, losses of the helix and pinna can be repaired in two operations, and total reconstructions of both ears have been done in as little as three operations.

Nasal Tip Reconstruction—Composite Grafts

Losses of the ala, columella, or tip due to trauma, burns, wounds, or operative causes, have always presented a problem in repair. Correction has usually necessitated the utilization of local flaps, which may alter a normal feature, on or adjacent to the nose, or it may be necessary to transfer a remote flap, which requires multiple procedures. The use of a free transplant from the ear, comprising two surfaces of skin with cartilage between, has made possible these corrections in a single procedure. There is minimal deformity of the ear which is repaired either by closure of the defect, grafting of the raw surface, or the use of a scalp flap.

In the selection of suitable cases, it has been observed that grafts over 1 cm. in width are on the borderline of possible success. The length of the graft is apparently immaterial. The following variations in the method suggested in the original communication have been investigated further and can now be reported. For restoration of the normal curve at the junction of the ala and the columella, this graft is particularly suitable. It is also useful in marginal losses of the ala or, if there is alar shortening, it can be used as a wedge to elongate the ala. For flat restoration of the tip, a plaque of cartilage and skin can be used.

The removal of all marginal scar is essential to insure an adequate minute blood supply with as much vascular surface as possible for contact with the open surface of the transplant. This will enlarge the defect, but is necessary in preparation of the area for the graft. An accurate pattern of the resulting defect will aid in the selection of the most suitable donor area on the ear and will avoid deficient or excessive removal of normal ear tissue. Several parts of the ear have been utilized for donor sites, depending on the size and shape of the defect. The skin over the cartilage should be thin, and care must be taken not to separate the skin and the cartilage. The most

commonly used source is the outer margin of the helix, which is usually repaired with a scalp flap in which the ear is buried. The flap is detached two to three weeks later, and the open surface behind the ear is grafted. The crus of the helix is used for smaller repairs and can be repaired by direct closure. If the antihelix or rim of the concha is used for a flat graft, it can be repaired either by closure or by grafting.

Surface Defects of the Arm, Hand, and Foot

Gunshot, shell fragment, and other types of wounds may leave large surface defects and extensive, crippling scars of the arm and hand. These can be repaired with direct abdominal and chest flaps, by using the principle of a short, broad pedicle, which will allow complete mobilization and immediate use of the flap. There is rarely any need for delaying or tubing these flaps.

This procedure has been carried out in a large number of patients, and a valuable saving of patient-hospital-weeks has been possible. Whereas long tubed flaps or delayed flat flaps have been known to require months of preparation, this direct type of flap is prepared in ten to thirty minutes and usually can be detached in fourteen to twenty days. In this procedure the crippled extremity is freed of its scar by thorough dissection, the flap is prepared accurately at the same time, the arm is "planted" under the flap, and in two to three weeks the arm or hand can be detached from the abdomen and the wound closed. It is soon ready for use, or for any necessary deep work on bone, nerve, or tendon.

Bone, nerve, and tendon repairs cannot be accomplished successfully through dense scar, because the results of these operations can only be as good as the surface healing. When deep repairs are attempted through excessive scarring, the wounds may break down, and wire, foil, screws, plates, and bone grafts may be lost.

The skin and subcutaneous tissues of the sole of the foot (and of the palm of the hand) constitute a specialized organ; similar structure does not occur elsewhere in the body, and it is a congenital structure—not a developmental one. Covering transplanted in the sole from other areas of the body does not metaplase to become a normal sole—simply walking on the new tissue will not cause it to change into a normal sole. The opposite may be true, and there may

be difficulty in maintaining a satisfactory condition of tissues transplanted to the sole. Keratosis, warts, and cracks may require frequent attention, and chronic ulcers may occur. It might be said that only substitutions can be made for losses of the sole.

The covering is also specialized around the heel and heel cord. Over the dorsum it is not so much so, but the important subcutaneous tissue over the malleoli and the dorsum must have intact surface covering to perform its function of resistance to trauma.

METHODS. 1. Excision of scars or lesions and resuture can be undertaken only occasionally, because there is little or no extra tissue in the foot. Care must be taken in deciding on this procedure, especially over the heel cord and on the sole. This procedure can be employed when there has been a partial amputation and what amount to adequate flaps have been preserved. But as a general rule the sole of the foot is not subject to excision and closure and primary healing. Neither will it give satisfactory healing if large areas are lost and closure by granulation and scar epithelium is allowed to occur. Large losses nearly always need some type of replacement even if the replacement is a rather poor substitute.

2. Free skin grafts are used if a satisfactory thickness of subcutaneous tissue remains to give support and blood supply. Grafts, of course, will not grow on bare cortical bone, or bare tendon, or fascia. When free grafts are used, good thick-split grafts usually suffice, and they preferably should be taken from hairless areas. One important use of grafts is to get wounds healed quickly even if it is recognized that the graft will not be a final restoration. This has been designated "dressing" wounds in thick split grafts. Open wounds on the sole of the foot are subject to recurrent, severe, and disabling infections. If these lesions can be carried along, at least, in a healed condition, there is improvement in the minute circulation and information is also furnished as to whether a flap will grow in the area. It can be repeated that flaps are not apt to do well where free grafts cannot grow.

3. Direct local flaps, either shifted laterally or rotated, with immediate graft of the donor site, may give excellent repairs of small lesions if one can meet the elements of caution in the procedure. These elements are not interrupting important sensation and, of course, being sure of the adequacy of the local blood supply for heal-

ing and of the blood supply of the flap itself. It is extremely important for the sake of smoothness not to cut the pedicle of the flap, but the opposite should be done, i.e., leave the pedicle prominent and clear out of position if necessary, and do a secondary smoothing-out later.

4. The delayed local flap, shifted laterally or rotated, is the safest form of flap to use locally. It should be raised in at least two stages, making a separate stage of cutting across the distal end of the flap and closing it. These flaps should not be used until there is complete healing, with no inflammation and no swelling. The lesion itself is not excised until the flap is ready for use, and for this reason the primary design of the flap is made large enough for the largest possible opening of the defect.

5. Direct cross leg flaps from the opposite thigh or calf can be used for many defects, large or small, if a suitable position can be decided on, and the patient is capable of accepting the distorted life for the necessary sixteen to twenty-four days. The direct flap cannot be used if the base cannot be swung out wide enough to insure blood supply or if the lesion cannot be placed close enough to the donor area so that a relatively short pedicle can be used.

6. Delayed cross leg flaps, either flat or tubed, are the safest kind to use. (As in all plastic procedures involving the shifting of tissue, the division of the work into stages is the surest way.) It can be noted that cutting clear around three sides of a flap, undermining it, and then resuturing it in its bed is not delaying it as far as its blood supply is concerned. It should be outlined along two sides, undermined and closed. At a later date, after ten or twenty days, the distal end should be cut and resutured and then not used until there is complete healing and normal softness of the tissues.

7. Same leg delayed flaps can be used occasionally, usually tubed rather than flat ones, but this entails complete change of direction to get to the foot, and little is gained except avoiding the cross leg position, and the possible crippling of the opposite leg. It is an important consideration when the opposite leg is missing.

8. Distant "turn-over," "jump," or "caterpillar" flaps from the abdomen or flank are of rare necessity, require a long time in completion, and usually waste a large amount of flap. They are occasionally useful if the other leg is missing.

9. Distant wrist-borne flaps are utilized by some surgeons, picking up an abdominal or flank flap on the wrist and carrying it to the foot. This is of limited usefulness but may give an excellent repair if enough time can be spared, because there is a wide range of selectiveness of tissue in this method.

Facial Injuries

Cleaning of facial wounds is extremely important and should be done with soap and water followed by ether and saline irrigations so that local antiseptics are seldom necessary; anesthesia may have to be given before the cleaning is completed because of pain. Oil ground into the face should be scrubbed and dissolved out completely. Bits of glass from rear vision mirrors or from completely broken shatterproof glass are especially apt to be overlooked, and for this reason it is well, if possible, to find out whether or not any glass was broken at the time of the accident so that search may be made accordingly.

Debridement should be done very sparingly both of soft parts and bone. If the usual idea of wide excision of torn edges were applied, many parts of features would be needlessly sacrificed. In dealing with loose bone chips extreme conservatism should be adhered to, and it is probably better to leave in some bone fragments that might die rather than adopt the policy of removing all loose fragments and thereby possibly discarding many good supporting fragments that might live.

The repair of jaw fractures cannot be totally separated from the repair of the soft parts, and therefore a brief summary is included here.

In complicated tears a correct replacement may be difficult, but a start is made at some known point such as the nostril border or the edge of the eyebrow. If none can be figured out, closure may be started in the center of a wound and the remaining segments bisected with sutures until there is complete closure. If flaps are torn loose in a trap-door or triangular manner, their correct reapproximation is extremely important if it involves a feature.

Close attention should be paid to the wound edges to see that they are in apposition, and of course very ragged edges should be cleanly excised. The first sutures may have to be deep, but they should

never be placed far from the wound edge because wide suture marks can never be completely obliterated. However, widely placed sutures may many times be put in and left open until the entire wound is closed; then they are tied over a gauze pad to bind the wound closely together and to avoid the surface cutting of the suture.

It is best to effect complete closure of the wound with deep, fine No. 000 white silk sutures so that, when the final skin sutures are inserted, they are merely to support the edges and adjust them. If possible, stay sutures may be put in from the inside of the cheek or nose.

Small drains may be placed advantageously, and firm, pressure dressings of mechanic's waste or marine sponges can be applied finally to control hemorrhage and swelling, and thereby infection.

Transverse facial fractures occur usually from heavy blows dispersed over the face. There may be a level of separation at the frontal-zygomatic suture line and at the glabella on both sides; there may be one through the wall of the antrum that may extend all the way around and involve the pterygoid region; and frequently there is a complete separation entirely around just above the dental arch. The whole face may sag down and become noticeably elongated, and the dental arch may be completely loose to the patient's own sensation and on moving it with the examining fingers.

Nasal, septal, and palate fractures frequently occur along with the above separation, and these small thin bones may be comminuted into multiple pieces. The nasal structure, including the cartilages, may be completely crumbled, and there may be one or more complete lacerations through the palate caused by the disrupted bone cutting through. The nasal passages may be completely occluded also.

THE ZYGOMATIC BONE AND ORBIT. The zygomatic bone (malar or cheek bone) frequently receives the blow but is itself seldom broken. Instead, it is torn loose from its moorings at the frontal zygomatic process of the temporal bone and the maxilla. The main displacement will be according to the direction of the force; if from the front, the zygomatic process will be crumpled back and broken by the zygoma itself; if from the side, the ascending ramus of the zygoma may be tipped in and impinge on the orbital space. In nearly all loosening of this bone the antral wall crumples, and, should it sag down too much, the orbit becomes elongated and the globe may descend so much that binocular vision is impaired. Blindness

may result from section of the nerve by a loose, thin piece of bone and from intraocular or direct ocular damage. The extraocular muscles and nerves may also be torn. The lacrymal apparatus may be impinged on if the frontal process of the maxilla is driven in.

Inner canthus displacement occurs if the nose with the frontal processes of the maxilla is crushed backward, there being an actual chiseling open of the front of the face. This deformity is as important as any other in which to accomplish an early repair, because, if left until fixation occurs, the canthi probably never will be sunken in normally again.

Nasal flatness goes along with the canthus displacement, and the two are corrected together by withdrawing the depressed tissues and bones, molding them into their normal positions, and frequently holding them there with through-and-through silver wire sutures inserted under the separated frontal processes and held on the outside of the nose over lead plates.

The general rule for repair is simply to replace these fragments and maintain them in position with the least manipulation possible. This replacement amounts to an open reduction, and access to the orbital border can be gained by a short incision in the buccal fornix, then into the antrum through the fracture line that is almost always present. The depressed border can then be elevated into position with a Kelly clamp. This bone may be locked in place, but, if there is much comminution, the whole number of fragments, including the anterior and lateral walls of the antrum, may be "mulched" in position and held with an iodoform pack in the antrum, with the end left just through the opening in the fornix.

If there is derangement of occlusion, the lower jaw can be used to splint the upper by fixation of the teeth followed by the application of a bandage from the chin to the top of the head. Frequently, the closing power of the muscles attached to the lower jaw will suffice for this and the overhead pull can be omitted.

In some fractures of the lower jaw, in which interdental wiring cannot be done, a wire—of the Kirschner type—drilled across the fracture line may be an easy and satisfactory method of treatment.

The indication for this internal fixation may be present when the opportune early time for interdental fixation has passed and the fragments have become displaced, with compounding into the mouth, infection, and local sloughing. It also may be considered in

edentulous jaws; when there is much comminution and accompanying injury, as in gunshot and war injuries; when many teeth have been loosened or broken; in displaced symphysis fractures; and in fractures at the angle in which the posterior fragment is pulled out, and up into the upper buccal fornix by the closing muscles. This last deformity is one of the worst to contend with, and, if left uncorrected, may result in nonunion of the fragments. It may also prove to be of value in certain separations of the upper jaw.

The internal wire will insure fixation in one plane—that is, the fragments cannot slip up or down past each other. However, they might rotate, in or out, or they might pull apart, and therefore the addition of an anterior wire dental arch will give a second plane of fixation that will prevent rotation and will jam the fragments in impaction so that separation will not occur. If there is a condyle fracture to deal with also, or if normal occlusion cannot be maintained, then there can be the further addition of interdental fixation to the upper jaw.

Multiple internal wires can be used for multiple fractures, or to give the second plane of fixation if desirable.

Secondary Repairs

Considerations and procedures which apply in carrying out secondary repairs are summarized below.

Local tissue is utilized whenever possible to effect repairs. All possible local tissue is always used, whether additions are made or not. On the other hand, the method should not be used when it will distort other features or interrupt important nerve supply. One could hardly expect widespread losses from burns about the eyelids and cheeks and nose to be subject to this treatment, and there frequently must be new tissue added.

The ability to add new tissue is the *sine qua non* of the plastic surgeon, and the following necessary instances of supplying new tissue are presented.

Burns require free skin grafts most extensively. Free grafts are preferable on flat surfaces to thick flaps, because of finally being more expressive, there being little emotional expression possible through or under a thick flap. The skin of the anterior chest wall just below the breast is usually best for the flat areas of the face.

Total losses of areas require flap restoration of the soft parts and finally support for the soft tissue restoration. (The plastic surgeon has to build somewhat backward, putting in the outside or covering first and the support later.)

Restoration of the jaw has been done, putting in the entire body with a rib transplant, extending from the ramus. It is planted in the new flap first and then attached to the remnants of the ramus later.

Cancellous bone from the ilium is used extensively in jaw replacements and probably gives the best over-all chance of healing.

Freezes of the face are apt to be widely destructive, requiring resurfacing of the whole face with free grafts and reconstruction of the nose and ears.

Noses are usually made from forehead or neck flaps. The final color match may be obtained by pigment injection.

Ears are usually made from a local scalp flap, a cartilage transplant, and a free skin graft. If desirable a short tubed neck flap can be added.

Composite grafts of skin and cartilage from the ears have been used extensively for repairs of the nose.

Cartilage is usually used to support noses. The transplant is cut in an L-shape in one piece and may be homogenous, autogenous, or preserved. Cartilage is also used in chips and grated to fill defects that can be molded into shape and don't require too much support. Cartilage for ears is essential, and if the angle of a costal cartilage is available a good shape of an ear may be cut out of it.

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REHABILITATION OF THE AMPUTEE

By HENRY H. KESSLER, M.D., Ph.D.

The civilian or military amputee faces many problems. There is not only the need of a prosthetic appliance which will in some measure substitute for the loss of his limb, but there is also the need for overcoming his anxiety concerning his future. Above all, one cannot overlook the hostile attitude of the public in condemning the amputee as incompetent and permanently disabled.

Many amputees have successfully overcome not only their physical handicap but also the social prejudice of the public. Not a few have been overwhelmed by their disability, as in high double above-knee amputations, and have sloughed off as unproductive and dependent elements of society. The majority struggle against the imperfections of the prosthesis, the prejudice of the public, and their own mental and emotional shortcomings until the scale is tipped in their favor by rehabilitation services.

The care of the amputee has had a long evolution from the days of complete neglect and indifference to the modern active interest of public and private agencies. In this evolution the limb industry has also played an important role, not only in the development of prostheses, but as the primary agent in the patient's adjustment to self-sufficiency. This development has culminated in the recent establishment of a certifying board, which is described below. The potentialities of this development of the limb industry are enormous.

The early days of military care of the amputee during the wars of America were marked by the limitations of medical knowledge and administrative negligence. The 50,000 men who lost limbs in the Civil War because of gunshot wounds and hospital gangrene did not have the advantage of modern antibiotics. Nor was the furnishing of artificial limbs considered a proper function of the military organization. However, the demands of the many amputee victims of this conflict provided the impetus for the development of the limb-making art in the United States. Out of this development, and the continuous modifications and improvements with the in-

troduction of new ideas, methods, and materials, came the artificial limbs which served the military and civilian needs of the nation up to the second World War. During this same period, however, the type of service that was provided was one-dimensional. The surgeon was interested primarily in his operation, and the limb-maker in the fabrication of the prosthesis. Rarely was there the cooperation between the two and the follow-up necessary to insure a successful adjustment to the prosthesis. For the 4,403 who lost their limbs in the first World War, only a limited service was available in the hospital. The major service was not rendered until the patient was discharged from the hospital.

It remained for the second World War to introduce the concept of rehabilitation in the treatment of the amputee. This was a three-dimensional type of service provided at seven Army and two Navy hospital centers which prepared the amputee for return to society before he was discharged from the hospital. It contemplated a series of services and coordinated activities that began when the patient was injured and continued until he was restored to a satisfactory physical, social, and even economic status. The basis of this program was a five-point plan which included psychological preparation of the patient, adequate surgery, after-care of the stump, adequate prosthesis, and training of the amputee in the use of his prosthesis.

Psychological Preparation

The first step in the program began in the hospital. The amputee, faced with a thousand anxieties for the future, needs help—help not only from the surgeon with his reassurance but from others who can help him in his adjustment. Such help comes from giving him an insight into the process of adjustment. He wants to know how his family will accept the disability, whether he will be able to walk, whether he will be able to work. Assurances are not enough. He requires visual evidence of what others can do. This is accomplished by demonstration by other amputees, by moving pictures, by graphic illustration in books and pamphlets. He requires also all the modern technics of occupational therapy and physical conditioning not only to overcome boredom and mental introspection but also as a preparation for prevocational activity. This was the type of program that was made available in the armed services, a

program that was so valuable and successful as to be adopted in other countries as well as the United States. Unfortunately for the civilian amputee, such facilities were not available outside the services, although attempts are now being made to introduce this same type of program in the general as well as the special hospitals of today.

Surgery

The lessons of the war period indicated that the surgery of amputations could well be simplified. There was first of all no need for performing a large variety of amputations. It was learned that certain basic procedures, such as the Symes amputation at the ankle, the below-knee amputation, the Stokes-Gritti amputation, and the classical site of amputation at the junction of the lower and middle third, gave an adequate number of choices for the average case. The amputations provided end-bearing and side-bearing stumps which served the needs of the amputee for the routine pursuits of life. It was also learned that simple technic minimized complications. For example, extensive muscle flaps were abandoned, while the treatment of the nerve by injections or other mutilating procedures was also replaced with gentle handling and no injections.

After-Care of the Stump

Many difficulties in the use of a prosthesis are not due to the prosthesis at all but can be traced to stumps that are contracted, weak, or improperly shrunk. Flexion contraction of above-knee stumps is a very common complication. In a large series of above-knee amputations in individuals above forty-five years of age, 75 per cent of those having difficulty with the prosthesis were found to have flexion contractures. Abduction contractures, while not as common, occur more frequently in the short above-knee stump because of the muscle imbalance between the intact abductor and the absent or diminished abductors. Flexion contractures of both knee and hip can be prevented by proper posture in bed postoperatively and certainly should be corrected by manipulation and exercises as soon as found. Massage of the stump has been carried out in the Army centers but has been completely abandoned in the Navy. The rationale behind this attitude is the possibility of increasing irrita-

bility of tender nerves that have been sectioned. Shrinking of the stump by wrapping with elastic bandages is essential, not only to expedite complete shrinkage but also to mold the stump into a proper shape to make it fit comfortably and painlessly in the socket of the artificial limb and to develop skin resistance to pressure before the prosthesis is applied.

Special exercises are indicated, particularly in above-knee stumps to strengthen the extensors of the hip and the abductors, especially when the abductors are weak or absent. Abdominal exercises are particularly valuable in bilateral amputations, whether above-knee or below-knee, because the fundamental of good balance cannot be obtained without good abdominal muscles.

Prosthesis

In the past the entire problem of prostheses has been left to the limb-maker. The entire responsibility for the fabrication, fitting of the prosthesis, and after-care was delegated to the limb industry. It is not expected that the surgeon or the physical or occupational therapist can acquire broad training and experience in the limb-making art in a short period. It is desirable, however, that they should understand some of the fundamental principles involved in the question of prostheses.

MATERIALS. Artificial limbs have been made out of a large variety of materials—wood, metal, fiber, plastic, and leather. Of these materials, willow wood, poplar, and linden wood have been considered basic. All over the world limbs of wooden construction have been considered basic, not only because they lend themselves to easy construction, but because a supply of wood is universally available and the workmanship and craftsmanship can be learned without any special skills associated with the material itself, as with metal. Wooden limbs have additional advantages in that servicing and repair are easily performed, since changes in the socket can be easily made with grinding, sanding, or routing tools. They have especial advantages for children, since changes have to be made frequently and a section can be cut out and a wedge inserted in a simple manner. Regardless of the materials, however, it should be remembered that they are secondary and that fit comes first.

DESIGN. The design of the artificial limb must take into consideration not only the standard components of the prosthesis, such as foot, bumpers, ankle joint, shin, knee joint, and thigh socket, but also the special factors of the height and weight of the patient, his age, and his occupation. Ankle joints, for example, can have simple anterio-posterio motion or may have motion in all directions, depending on the need for excessive walking on irregular surfaces. In the young, a free knee joint with a minimum amount of friction is usually indicated. In a stocky, phlegmatic individual over forty-five years of age, a physiological or double-axis knee joint may be more suitable. In the older age groups, particularly in the presence of debility, a knee lock may be necessary. Other varieties in design occur in the matter of suspension. It is unusual today to see shoulder harnesses employed in suspending the artificial limb. The pelvic band has replaced shoulder harnesses. This is now being replaced by the suction socket which is maintained in position by the suction created in the application of the socket to the stump. Another aspect of design can be seen in the use of ischial-bearing thigh corsets for short below-knee stumps.

FABRICATION. The manufacture of artificial limbs is conducted in a variety of ways all over the world. In the United States the industry has slowly evolved from the experience following the Civil War. In addition to those engaged in limb-making in the United States there has been an influx from abroad of men who have been trained in the industry. Many of those who have come from Germany have developed their skill and experience from two trades, one the glovemakers' trade, which saw its early development in the first part of the nineteenth century, and the other the orthopedic trade, which arose from the development of the manufacture of medical instruments. In the United States there are more than 300 factories and workshops employing anywhere from one to fifty persons. The smaller firms generally assemble stock parts such as wooden feet, shins, knee joints, and so forth and fit them to their clients. The larger firms produce these stock parts on a large scale but also carry out the entire fabrication from start to finish.

FITTING. Regardless of the materials employed, the most important part of the prosthesis is the fitting. This depends first of all

on proper measurements, secondly on proper construction of the prosthesis, and thirdly, on the adjustment of the prosthesis to the patient's stump. Measurements are taken in a variety of ways, sometimes by simple outline of the stump on paper with measurements of the circumference of the stump at different levels. Cardboard templates are then fashioned from these measurements and are used to determine the exact contour of the socket. Similar formers or stock patterns are used to determine the shape and size of the socket from circumferential measurements of the stump. This is especially indicated in thigh sockets. Plaster casts of the stump, especially if below-knee, are also used, since it would appear logical that a more accurate reproduction of the stump could be obtained in this manner. Some allowances must be made, however, for the shrinking of the plaster, and adjustments are frequently necessary despite this accurate reproduction.

Peculiarly enough the below-knee amputation stump is much more difficult to fit than the above-knee stump. This is because the skin over the bony prominences of the tibial tubercle, the internal condyle of the tibia, and the head of the fibula are not biologically prepared for weight-bearing or the excessive compression of the skin from the socket. The good limb fitter therefore takes this matter into consideration and pads the plaster model over these weight-bearing points with felt or leather so that the socket will allow room and avoid excessive pressure at these points. There is considerable variation in the carrying of the weight on the below-knee stump. In view of the fact that the skin over these areas is compressed between the rigid socket and the underlying bone, many limb fitters prefer to take most of the weight bearing on the skin over the patella tendon. In this instance the skin is compressed between the rigid socket of the prosthesis and a flexible, yielding socket, the patella tendon underneath. Whatever method is employed one principle is indispensable, namely, the distribution of weight-bearing pressure or strain so that it is diffused over a wide area and not localized in one spot.

The good limb fitter knows how to distribute his weight-bearing strain. He knows that, no matter how well fitted and adjusted the below-knee socket may be, it still can only carry a small amount of the weight-bearing strain. In a standard 5½-6-in. BK stump this

load is about 50 per cent of the normal weight-bearing load. The rest of the load is borne by the thigh lacer or corset. This can be adjusted or tightened so as to take increasing amounts of strain, thus reducing the amount of weight-bearing strain on the stump itself. In short below-knee stumps, the stump can only take 5 or 10 per cent of the total load and the rest of the load must be transferred to the thigh lacer, which must be either lengthened or modified by the incorporation of a rigid cuff of block leather carrying the weight on the ischium.

Fitting the thigh socket and thigh stump is comparatively simple. About 75 per cent of the weight is borne on the ischium and about 25 per cent on the circumferential skin and soft parts of the stump itself. In former years when shoulder harness suspension was the standard means employed, it was necessary to fit the socket very carefully, since an inadequate fit would cause marked rotation of the stump in the socket. With the advent of the pelvic band suspension, a greater leeway was permitted and a tendency to poorer fit resulted, since the pelvic band acted as a safety factor in maintaining the socket on the stump. With the suction socket it has been necessary again to obtain a better fit.

There are two types of fit with the thigh socket. In one of these the maximum weight-bearing load is carried on the ischium. The other is the so-called plug fit, in which the circumference of the inguinal and gluteal areas fits into the socket like a plug and thus carries the weight.

Every stump is fitted with a stump sock, which acts as an extra safety factor in the adjustment between stump and socket. Stump socks have to be kept clean. They must be of proper wool and cotton content and must serve not only as a buffer between the rigid socket and the skin of the stump but also as a ventilating mechanism to absorb perspiration. Another feature of limb fitting has to do with alignment. Special machines have been developed to obtain a proper relationship between the foot, the shin, and the thigh and the respective joints. Regardless of these machines, however, the ability to fabricate and fit is an art which can be developed only from years of experience. While stock parts may be duplicated by special copying machines, the essential construction and fitting of the limb must be done on an individual basis, with the trained skill associated with long experience in the trade.

SELECTION OF PROSTHESIS—LOWER EXTREMITY. In the selection of a prosthesis we are interested not only in the materials but in the age of the patient and his occupation. For a child we select wooden limbs because of the necessity of frequent changes and the ease with which these changes can be made in a wooden limb. With the adult the choice of the prosthesis will depend in a large measure on personal preferences. The use of weight as a criterion is secondary, since good willow limbs may be made light enough for ordinary purposes. For mass production, metal limbs are somewhat more adaptable than willow. At the Ministry of Pensions amputation center at Roehampton in England, about 80 per cent of the limbs are of metal construction and 20 per cent of willow wood.

In addition to the age and occupation of the individual, the length and character of the stump are also criteria. In the standard below-knee and above-knee stumps, standard prostheses are indicated. For the Symes amputation at the ankle, special Symes prostheses are indicated. In the Stokes-Gritti amputation, special prostheses are indicated. For disarticulations of the hip, a variety of prostheses are available, but, in view of the fact that all the joints of the normal leg are missing, the use of a physiological knee joint minimizes the disability associated with this limb. Contrary to accepted opinion, prostheses may be made for hindquarter amputations. The use of suction sockets has been added to the armamentarium of the surgeon and limb maker. When there is no specific contraindication, these suction sockets are more suitable to the stout and heavy stump than to the long, thin, conical stump.

SELECTION OF PROSTHESIS—UPPER EXTREMITY. In the rehabilitation program we have learned that we have to treat the arm amputee differently from the leg amputee. In the latter case, the prosthesis can easily substitute for the function that is lost. In the arm, however, the prosthesis cannot substitute for arm function. It can only imitate arm function, and it is a poor imitation at best.

We must begin, therefore, in pointing out to the arm amputee the limitations as well as the advantages of prostheses. We must fit the prosthesis not only to the patient's stump but also to his whole personality. We must begin by analyzing the patient's needs. These needs are social and functional. Every amputee needs a prosthesis for social reasons so as to appear like a normal person and reduce social prejudice. However, if the disadvantages as to weight, cost,

and interference with routine activities such as dressing and the ease with which he performs many of his daily activities outweigh the social advantages, then it would be reasonable to get along without it. The man in public life or business who meets many people is in greater need of an esthetic prosthesis than the farmer or the stonecutter.

Again the functional needs of individuals vary a great deal. Many can perform all their routine daily functions with one arm, depending on their teeth, knees, shoulders, or the end of the stump of the amputated arm to perform two-handed activities. However, where the personal life or occupation places a great deal of emphasis on two-handed activity, a functional prosthesis is indicated.

In designing a functional prosthesis we must avoid the pipe-dreams of inventors who look for miracles, because we cannot duplicate the hand. The practical thing to do would be to analyze those functions of the hand that can be duplicated. Such an analysis reveals that the hand has two major functions, sensation and motor power. As a sensory organ the hand is the eye of the blind. It is a tactile organ for appreciating touch and position for the sighted person. It is the tongue of the mute, while even in ordinary conversation our hands, through the medium of gestures, help us to communicate our ideas and thoughts to others. In this way the hand is a projection of the brain. It cannot be mechanically duplicated. As an organ of motor function it is a tool which permits the brain to exercise its ideas over a wide range of activity. If we analyze the composition of this tool, we find four basic components among the thousand permutations and combinations of hand and finger movement. These components are exemplified mechanically by a ring, a pair of pliers, a forceps, and a hook. These four major components can be duplicated mechanically either in the form of a utility split-hook prosthesis or in a mechanically controlled artificial hand.

In deciding on what kind of prosthesis we should provide in a given case, we must analyze the patient as to age, occupation, and interests as well as his clinical condition. The important thing is to have many measures and devices to choose from in order to meet the special needs of the amputee.

Take the case of the bilateral arm amputee. He is in a different category from the single amputee. In the former instance his need

for prehension is so great that he will himself devise methods for grasping even without prostheses. This he does by putting both stumps together or by using his teeth, knees, and shoulders. For him apparatus is especially necessary. For him also there is the possibility of certain special measures such as cineplasty or the Krukenberg operation. Cineplasty utilizes the muscles left in the amputation stump by making tunnels through them, lining the tunnels with skin, and then attaching them by means of ivory pegs through a yoke to an artificial hand. The same muscle which normally activated the fingers of the natural hand now operates the artificial hand. In bilateral above-elbow amputations the cineplastic operation is ideal.

The Krukenberg operation is especially adapted for long forearm stumps. The forearm is split into two long fingers which work against each other, thus permitting grasp but also retaining sensation in the tip of each finger.

In bilateral below-elbow amputations with blindness, the Krukenberg operation is ideal, since not only is prehension obtained but sensation and touch, so important to the blind, are retained in the end of the stump. Sensation becomes diminished the higher the amputation; it was necessary for a nine-year-old boy who was blind and had two upper arm stumps to read Braille with his lips.

SERVICING AND REPAIR. Any competent and progressive limb-maker will agree that about a third of his business is concerned with servicing and repair. This is understandable. A prosthesis is an item subject to wear and tear and to special and sudden strains and injuries which make it necessary to seek the help of the limb-maker. To minimize servicing and repair it is desirable that the amputee know something about his limb. Certainly a briefing in the anatomy and construction of the limb and some instruction in minor repairs would save countless days of disability and prevent major breakdowns. This is not an established custom by any means, but it is an idea worthy of further exploration. The Veterans Administration took cognizance of the importance of servicing and repair and organized a system of prosthetic cards, available to any veteran amputee anywhere in the United States, to facilitate this type of aid.

With continued use of the prosthesis there is apt to be rapid shrinking of the stump. The socket then becomes too large, and

chafing and even instability will result. This incongruity between the size and shape of the stump which is being altered and the size and shape of the socket must be adjusted. The wearing of additional stump socks provides a simple solution for the average case. Soon, however, this is not adequate and the extra space in the socket must be filled in with leather levees. Finally, after many levees and many stump socks, it is necessary to fashion a new socket.

Training

One of the greatest shortcomings of the services rendered amputees prior to the second World War was the failure to provide training and instruction for the amputee in the use of his prosthesis, either arm or leg. It was taken for granted that the amputee would eventually learn by trial and error until he had mastered the ability to wear and use the prosthesis satisfactorily. It was like asking an individual to go to a music store, purchase a violin, and immediately go out and play Beethoven. This was a presumption that was entirely unwarranted. While a small number of amputees, because of excellent fit, good musculature, and an innately fine sense of balance as well as the incentive and motivation to succeed against all obstacles, did make rapid and successful adjustments, the majority were forced to accept their limitations and restrictions, many resigning themselves to a life of disability and invalidism.

The introduction of training instruction for the amputee was a distinct innovation, not only for the military establishments but also for the whole limb industry. During the war various technics were tried out, and ultimately the successful ones were integrated into a coordinated system leading to maximum skill. It was found that the lower-extremity amputee must learn and acquire reasonably good balance on both limbs before taking a step with his prosthesis. Any walk practiced prior to the development of correct balance inculcated incorrect movements in the ultimate walk. After correct balance, the position of the body in relation to the joints of the prosthesis must be maintained in such a manner as to control the forward motion of the walk. If properly practiced it will eliminate buckling of the knee and will actually enable the amputee to bear weight on a flexed (prosthetic) knee. After systematic instruction in balance the patient is taught proper gait and the control of

the limb by adjustment of the relationship of the body to the force of gravity. These simple intensive and systematic exercises constitute the basic training of the amputee. They are followed by intermediate training in learning to walk on the level, over irregular objects, and up and down stairs. Advanced training follows, with the routine pursuits of life, dancing, roller-skating, athletic sports, and then preparation for work activities. Thus the amputee is prepared to take his place at work, in the community, and in the family as an independent and self-sufficient unit.

Postwar Activities

In the four years that have elapsed since the close of the war these ideas, so well elaborated and developed during the war period, have been kept alive and nourished by many agencies. The Veterans Administration, for example, has continued a well-rounded program of services which includes not only the basic five-point course of training within the hospital framework but a constructive program of servicing and follow-up in the veteran amputee's home community. Each veteran receives a prosthetic service card which entitles him to servicing and repairs anywhere in the United States up to $35 without the delay associated with formal application and execution of requests. Furthermore, the Veterans Administration has an active program of research in the development and trying out of new devices. Education and training of medical personnel through special courses adds to the sum total of knowledge and ability to diagnose and prescribe for the veteran amputee. This is the first time that special courses on a systematic basis have been made available to physicians who, because of the lack of this information, have been content in the past to delegate full responsibility to the limb-maker. With this added knowledge, the physician and limb-maker can collaborate more effectively in providing service to the amputee.

During the war the National Research Council through its Committee on Artificial Limbs undertook a broad program of research which is still in progress. Many new ideas were analyzed, and other older ideas were re-examined. A body of information has thus been obtained which will form a proper frame of reference for any future developments.

The Federal Office of Vocational Rehabilitation, which is concerned with the problem of the civilian amputee (of whom there were 120,000 during the war period which produced 18,000 military amputees) has carried on a steady program of propaganda and education of the public, the amputee, and the physician, as well as other professional personnel. Through the setting up of amputee demonstrations in large cities in conjunction with the American Medical Association, State Crippled Children Commissions, and fraternal organizations like the Elks, the public has been given an opportunity to see "amputees in action" and learn the tremendous potentialities of adjustment of the amputee, not only in sports but at work and in the routine pursuits of life.

The Orthopedic Appliance and Limb Manufacturers Association has sponsored the formation of a Certifying Board for the limb industry to certify qualified limb fitters and firms. For the first time in the United States the amputee and the surgeon will be able to select approved and qualified persons who can be expected to provide the standard of service which has evolved from our experiences in the recent war.

Summary

Coordinated, organized, and integrated action on the part of the surgeon, the limb-maker, the public, and the amputee can contribute effectively to the productive capacity of the nation. This has now become the standard of service to the amputee for 1949. Any amputee who does not receive this service is being deprived of his fundamental rights as a citizen and as a human being.

REHABILITATION OF THE TUBERCULOUS

By HOLLAND HUDSON

Between the first and second world wars rehabilitation of the tuberculous received an initial stimulation which was soon checked by practical considerations and by accumulations of folklore in the thinking of both the medical and the lay population. It is a fairly universal human trait to seek short cuts and panaceas. When it was discovered that rehabilitation contained therapeutic potentialities, some attempts were made to substitute various rehabilitation procedures for parts of such standard therapy as adequate bed rest and graduated physical work-up. At that time most counselors were newly recruited from fields such as vocational education and had not yet discovered the extent or the hazards of their own physiological illiteracy. Consultation with physicians regarding the training or job objectives of patients was accordingly a fairly rare procedure. It is not surprising therefore that failure and reactivation were frequent enough under such circumstances to suggest a need for caution and for medical participation in vocational rehabilitation planning.

In addition to such unfortunate adventures, the growth of rehabilitation for the tuberculous was delayed by a number of traditions. Medical education, even when it included special instruction regarding tuberculosis, confined curriculum content to the methods for diagnosing the disease, its pathology, and its communicability. Therapy for tuberculosis was chiefly an accumulated tradition. Its orbit seldom extended beyond conversion of positive sputum to consistently negative findings. A few interested internists and clinicians attempted to aid patients in their readjustment to the community, but the interest of these individuals was unsupported by organized research or by the consistent encouragement and recognition of many of their professional colleagues.

Despite these handicaps, some explorations were made. As a result, a few physicians sampled the therapeutic possibilities inherent in a rationally conducted rehabilitation program, and an increasing

number of counselors discovered that, through conferences with the physician and by learning more about the disease, the hazards of failure in rehabilitation of the tuberculous might be materially reduced. Gradually the role of rehabilitation was established as a most valuable adjunct to medical treatment rather than a substitute for any part of it (1). The percentage of cases of successful rehabilitation increased as the capacities of the patients became better understood and as thousands of ex-patients proved their ability to assume successfully and permanently a self-supporting part in community life. At the close of the fiscal year 1946-1947, the state vocational rehabilitation agencies had, since 1934-1935, placed in selected employment 21,690 persons with a history of pulmonary tuberculosis.

Involved in the problem of rehabilitation are a few fundamentals which we too often assume are known by everyone. The pressure of folklore and tradition is such, however, that often even scientifically trained persons forget to apply one or more of these facts and act rather from emotional patterns having roots in nonscientific supposition. Here are seven facts which have been more firmly established in recent years and which are basic in the control of tuberculosis and the rehabilitation of tuberculous patients.

1. The disease tuberculosis is produced by the invasion of human tissues by a microorganism, the tubercle bacillus. Without this bacillus there can be no tuberculosis. The bacillus is present in all tuberculosis, even when identification is difficult.

2. Infection with tuberculosis is essentially a person-to-person process. In the communication of this disease, a person with active tuberculosis is the vector. In order of their probable danger in the spread of the disease are (a) the undiscovered, actively tuberculous adult (often in the older age groups), (b) the diagnosed but unhospitalized patient who is unwilling or unable to cooperate in the protection of others, and (c) the patient who, having temporarily enjoyed some clinical improvement of his condition, experiences reactivation of his disease. The values of rehabilitation as a part of tuberculosis control depend upon its efficacy in influencing patient groups (b) and (c).

It should be noted at this point that only the patient with active disease can infect other persons. While it is possible to infect other persons by contamination of materials, an overwhelming majority of tuberculous patients acquired their infection from contact with

an actively diseased person. With good case-finding techniques, the probable source of infection can frequently be identified.

3. Infection does *not* inevitably result in disease. Many of us are exposed at one time or another to infection from some actively tuberculous person. Most of us resist such infection successfully, either entirely or by preventing the bacillus from producing progressive disease in our tissues. This generalization is confirmed by review, since spot checking of contacts of actively tuberculous persons usually discloses many who do not have active tuberculosis and some who react negatively to tuberculin.

The nature of human resistance to disease is only partially understood. However, a few assumptions are warranted. Adequate nutrition appears to be a factor in resistance to many kinds of infection, and it is highly probable that inadequate or unsuitable foods lower the threshold of resistance. Exhaustion produced by frequent and extraordinary exertion or by illness apparently tends in some persons to lower the threshold of resistance to various infections, including tuberculosis.

4. The onset of tuberculosis is ordinarily so insidious that often the bacilli are established in substantial force long before the host becomes aware that his health is affected. The "classical" symptoms are not necessarily present in early stages of the disease.

5. The course of tuberculosis is usually long and slow, placing it definitely in the category of chronic disease. It requires intervals of treatment more extensive than those usual in acute illness.

6. The core of modern therapy for tuberculosis is bed rest followed by a graduated physical work-up. Its objective is to allow the systemic resistance of the patient's body maximum opportunity to overcome the invading bacilli, first by checking their spread and then by walling them off sufficiently to prevent subsequent progression.

In individual instances, mechanical aids, such as artificial collapse of a lung or portions of a lung, may help by providing further rest of the diseased areas. Thoracic surgery may aid the patient who has sufficient resistance to his disease to clear up the balance of his infection when the principal focus is immobilized or excised.

Thus far, chemotherapy has been useful in selected cases to check the further advance of bacilli. However, the types of cases in which it represents definitive treatment are limited.

7. When the course of tuberculosis is checked, the tuberculous patient has, with few exceptions, a permanent occupational handicap. At the very least, he has a *history* of clinically significant pulmonary tuberculosis of the reinfection type. A number of large employers still pursue the asocial and unjustified policy of rejecting for employment all applicants with a history of tuberculosis. This practice has had widespread imitation in smaller establishments. The tendency of the disease to relapse, recur, or become reactivated has been celebrated in medical literature much more thoroughly than it has been investigated. Every ex-patient, therefore, faces emotional obstacles in the public mind which may be more serious handicaps to his chances of employment than those factors implicit in his own physical impairment.

While the X-ray picture of advanced tuberculosis is often highly dramatic, the total supply of air space in the lung is ordinarily sufficient to allow for considerable destruction before a recovered patient is wholly incapacitated for vocations and avocations making moderate physical demands. However, in terms of safety the ex-patient is almost inevitably advised to select employments and recreations which do not involve marked fatigue daily. Unless such advice is coupled with specific guidance and training, it is all too seldom applied by the patient; very few persons are able to find a satisfactory solution without assistance, for they do not know enough about what jobs exist or how to qualify for them. Undoubtedly the relative importance of the wrong job in the total cause of reactivation has been overstressed by some vocationalists. Recognition of other factors, however, need not lead to a total neglect of this hazard (2).

Adequate financing for the effective institutional treatment of tuberculosis is not easily obtained in all instances. The long-time records of many of the state legislatures and the postwar record of the Congress are highly creditable. In the local community, however, whether city or county, the cost of operating a medically effective tuberculosis institution is frequently one of the largest single items in the community budget. Very naturally it thus becomes a subject of attack by many uninformed persons whose sincerity may be complete but whose public health information is faulty. Accordingly, officials who determine appropriations are frequently subjected to a crossfire of opposition to the tuberculosis institution in

which there appears a tendency to group all tuberculous patients with chronic paupers, the feebleminded or criminal, and the hopelessly insane. The well-informed official does not succumb to this confusion; the issue may be determined by the quality of his source of information. Cuts in appropriations for the treatment of tuberculosis cannot result in optimum medical results. In tuberculosis control, as in all other public health measures, the taxpayer gets what he is willing to pay for.

Occasionally it happens (as in a number of Veterans Administration hospitals following the second World War) that a thorough and determined effort is made not only to give tuberculous patients competent medical supervision and nursing service in a modern hospital setting but also to supply supplementary services which will encourage maximum cooperation during hospitalization and facilitate safe and suitable adjustments after discharge.

One of the first problems of the administrator in such circumstances is the naïveté of various special workers and technicians concerning tuberculosis. That innocence can be dangerous to workers; to patients, and to the control of tuberculosis. These hazards include the practices of those pioneer teachers of some years ago who accepted the interest of patients as the sole criterion for capacity to study, with three results: the recurrence of symptoms in the patient, the discharge of the teachers, and the conviction in the minds of some internists that no lay person can be trusted in sanatorium service.

At the other end of the scale we have the lay worker whose feelings concerning tuberculosis are so confused and so influenced by misinformation and fears that he is of no possible use to the patient in adjustment or planning. These extremes may be avoided by orienting prospective workers in the nature of the disease, the methods of treatment, and those routines which have been established for the protection of patients and others.

Spot studies conducted in various areas or among groups of patients and those persons responsible for their treatment disclose additional facts concerning the use made of rehabilitation information. In their zeal to find, to diagnose, and to begin the treatment of tuberculosis, many doctors, public health nurses, and other health workers forget what they have heard or read regarding the availability of rehabilitation service to aid in the recovery of tuberculous

patients. The attack on "open," active communicable disease is apparently so much more in the emotional foreground than uneventful recovery that thousands of American patients are discharged from sanatoriums every year with no hint from anyone that public education funds are available to help protect their physical and economic security.

A striking change is manifest when the agencies charged with the responsibility for rehabilitation attempt to make their services known to every patient with the capacity to recover from his disease. Some increase in applications may follow the production of suitable publications. Patients with established reading habits are frequently induced to begin planning by means of circulars or pamphlets. But printed matter alone tends to pile up on some one's desk because doctors and health workers are well aware of its limitations in influencing behavior, especially when it is not backed up by personal contact. When regular and frequent contact with patients by rehabilitation personnel is introduced, the results soon become clearly evident. In Michigan, following the adoption of an in-hospital program by the sanatorium, the tuberculosis associations, and the State Division of Vocational Rehabilitation, the record of case closures employed on the job climbed 50 per cent in one year.

Current appropriations for vocational rehabilitation, whether by the states or the Veterans Administration, are not yet sufficiently adequate to permit an interview by a vocational counselor with every tuberculous patient who will recover. But one goal within the reach of present appropriations is regular periodic contact between rehabilitation personnel and hospital personnel. In some areas voluntary tuberculosis associations have helped to establish this line of communication until such time as it can be incorporated in the official program. It should be noted that these associations are educational organizations engaged in pioneering various methods which improve disease control and protect the public health. They are not eleemosynary bodies, and direct aid forms no part of their representation to the public. There is no good reason why they should perform services for defaulting public agencies, whether in the field of nursing or of welfare or of education. Demonstration may be a normal and healthy undertaking for a voluntary association, but the nature of its function and the relation of official agencies to the future program should be implicit from the outset.

Observers of rehabilitation service for the tuberculous from the Office of Vocational Rehabilitation and National Tuberculosis Association have suggested that a minimum goal in rehabilitation employment placements should equal 10 per cent of the number of new cases of tuberculosis reported to state health departments in the preceding year. Those who made this suggestion are fully aware of the heterogeneous character of current tuberculosis reporting, and it was for this reason that the percentage suggested was set as low as 10 per cent. In the fiscal year 1946-1947, the number of Connecticut's placements of rehabilitated tuberculous persons was more than 14 per cent of the number of new cases reported. In many states where no contact has been established with patients under treatment, the number of placements has lingered around 1 per cent of the number of new cases reported.

Ratio to apparent need would seem to this observer one pertinent criterion of the effectiveness of vocational rehabilitation service. We have a rough indication of the need in the number of new cases reported. As diagnosis and treatment are further improved, any 10 per cent ratio of employment placement to new cases will seem as absurdly small as it now seems mountainous to those rehabilitation services which merely wait for clients to walk into their offices.

For all their considerable therapeutic and preventive potentialities, nothing in those services grouped within the term *rehabilitation* can provide any adequate substitute for sound medical practice. Rehabilitation cannot compensate for perfunctory stethoscopic examination or stubborn refusal to utilize chest X-ray and laboratory routines as frequently and as widely as possible. Probably universal medical attention will not be given to the early detection of tuberculosis or incipient disease until more patients expect attention to this item of health. This may enforce the granting of a place in the medical curriculum to the teaching of tuberculosis diagnosis and treatment such as is now occupied by diseases of much rarer prevalence in everyday American practice.

On the other hand, some practitioners who have had admirable instruction in diagnosis have no comparable training in dealing with people. In the interval following the identification of tuberculosis, the physician often has opportunity, which does not occur again, to aid the patient in facing his problem and to some extent in planning to solve it. Skillful utilization of this psychological

moment by physicians as skilled in therapy as in diagnosis has thoroughly justified the axiom that rehabilitation begins at diagnosis. At this time the patient may, with the doctor's help, learn to know his enemy and his own weapons of defense. He may then determine whether he will fight the matter out without loss of time or seek to run away even in the face of the fact that the bacillus cannot be shaken off by such means.

Medical service of this kind is time-consuming and makes serious demands upon the energies and patience of the physician. Many patients are so ignorant of the rudiments of physiology or so confused by the accumulation of misinformation as to be unable to take in the facts with which they are confronted. Also, many patients whose disease has not yet produced uncomfortable symptoms seek to reject or evade inconvenient findings. In some, fear of treatment is greater than fear of the disease.

Until such time as man becomes a completely rational animal, we have no right to expect any diagnostician to obtain complete understanding and cooperation from every patient in whom he finds active clinical tuberculosis. On the other hand, we do too little honor to the physician who attempts, at the time of diagnosis, the best job of teaching of which he is capable. Among the nonphysiological factors which may be observed in recovered patients, none stands out so consistently as the lasting influence of sound and adequate counsel from the physician at the time of diagnosis. This is no novelty; it is the traditional doctor-patient relationship which is too often discounted by the public in favor of mechanical or chemical aids far less vital to recovery and disease control than this fundamental part of therapy. It may be noted that time devoted to the patients themselves, whether at diagnosis or throughout treatment, often tends to become the less well-remunerated of the doctor's functions. When we are inclined to be critical of medical performance, we should first ask ourselves whether the physician or the public is responsible for setting up the medical program in this way.

When professional workers in any field of human service study the behavior as well as the misfortunes of individuals, they are likely to discover the pervasive influence of the family. Often a patient's response to treatment and rehabilitation opportunities may depend almost as much upon the family of which he is a part as upon himself. Many families have aided the physician and his lay workers in

persuading a confused and disturbed patient to accept at critical moments the means necessary for his recovery. The ignorance and superstition of others lead individually responsive patients to throw away their lives on the altar of an established family solidarity. No one who works with patients can afford to ignore this enormous potential for aid or for destructive interference. In too many instances it presents too formidable a problem for amateur skills, and the practical and sensible solution is the employment of a well-oriented social worker to work with the physician and other supplementary services (3).

One means by which rehabilitation of the tuberculous has been substantially advanced in the last decade is through the in-hospital rehabilitation team. This has appeared on the scene as an evolutionary adaptation of principles established in medical and surgical hospital teams. Instances of fully staffed teams are not frequent save in Veterans Administration hospitals, but beginnings in which the team principle is at work are no longer rare.

The full-length theory of the in-hospital team is reported in the proceedings of a tri-agency conference held in Washington in 1946 with participants from the fields of hospital treatment, tuberculosis control, and rehabilitation.* A report of teams-at-work has appeared as a technical paper of the Office of Vocational Rehabilitation (4). Such a plan seldom is evolved according to anyone's blueprint because of the individual differences of the participating members of any team. The most responsible spot is that of the chief medical officer or the physician selected by him to represent the medical responsibilities involved. Unless this individual keeps the agenda focused on items which make a therapeutic contribution, directly or indirectly, the effectiveness of the team may be sacrificed to the personal preoccupations of one of its more aggressive or more vocal members. Under ineffective chairmanship, counselors may dwell too long on the mechanics of aptitude measurement, inexperienced social workers may discuss emotional factors beyond their application to team action, and others may recite at length on the progress or regression of individual patients who support their own theories or hobbies.

* *Proceedings, Conference on the Rehabilitation of the Tuberculous* (Washington, March, 1946), New York: National Tuberculosis Association, 1946. The agencies represented were the Office of Vocational Rehabilitation of the Federal Security Agency, the Tuberculosis Control Division of the United States Public Health Service, and the Rehabilitation Services of the National Tuberculosis Association.

Probably no team has been assembled in which all the members were equally equipped for their duties by training, experience, and personality. Operation of any team requires that encouragement be given to its less articulate and more timid members and that occasional restraint of individual loquacity or dominance be exerted when appropriate. In the operation of a team, its members should learn to submit objective evidence instead of conclusions.

The cost of team methods is brought into question, and with some justification. As the total payroll cost of a so-called case-board team is likely to equal that of a medical case conference, there is every financial reason why the presentation and consideration of the data should move along with all possible celerity. Individual clearance between two or more persons or virtuoso flights by single individuals should not consume the time of a group convened to pool information for therapeutic application.

Other objections to the team come from persons who have enjoyed prior access to the medical staff and who not only fear for the continuity of this established relationship but also are concerned about the preparation and the fancied authority of each of their colleagues. Doctors eventually learned to work with nurses without too disturbing a residue of personal insecurity. Lay hospital workers must learn to work with each other harmoniously if they are to make the optimum contribution to the medical result.

The team tends to include some or all of the following members representing special disciplines: doctor, nurse, occupational therapist, physiotherapist, social worker, recreation worker, teacher, librarian, and counselor, with additions or subtractions according to the resources of the institution and the needs of the patient group. Selection from this galaxy is the prerogative of the administrator. Ordinarily this prerogative is exercised most fortunately when the case histories of current patients have been recently analyzed with this use in view.

One disability which many programs of treatment for the tuberculous share with programs for general rehabilitation is that they are not widely known either to the public or to the professional population. Many of the treatment institutions erected some years ago were located as far as possible from centers of population, which also isolated them from centers of medical training and centers of general public interest. Even since 1940, the dean's committees of several

of the best-known hospitals in the United States have indicated their opposition to the location of treatment and teaching centers for tuberculous veterans near their hospitals. Despite the fact that tuberculosis remains the leading cause of death by disease in the age group involved, they based this opposition on their belief that general medical and surgical services provided greater advantages to the community than tuberculosis centers. The Christmas seal is an indication that at least a part of the public does not object to the mention of tuberculosis, but the subject is still scarcely a favorite in our general population.

Former patients who have conquered the disease have often found it expedient to keep their medical past a private matter. Between this expediency and the fragmentary and irregular records of recovery, the number of living recovered patients is likely to remain for some years a matter of conjecture without competent or significant actuarial data. Hence, rehabilitation of the tuberculous patient receives only what acclaim can be derived from the official figures of placement closures by the states.

Further progress in rehabilitation of the tuberculous depends very considerably upon progress in the rehabilitation of all other types of disability. Intake or referral policies which lag with regard to other disabilities are not likely to make exceptions to favor the tuberculous. Training agencies which "process" other impaired clients may not be expected to serve the tuberculous with skill and understanding. Employers who retain allergies toward other forms of handicaps are unlikely to employ the recovered tuberculosis patient advantageously. The funds for all types of clients come out of the same appropriations, and thus total appropriations must be upgraded if we are to come nearer to serving the manifest needs of the tuberculous.

In too many states the friends of various disabilities have no agreed platform regarding needs and appropriations. Some socially irresponsible politicians continue to divide and conquer individual efforts to underwrite service commensurate with actual needs. To begin a better interagency understanding, a group of national agencies interested in many different disabilities began in 1943 an affiliation under the title "National Council on Rehabilitation."

The National Rehabilitation Association is a pioneer professional association whose policies have been streamlined to keep pace with the times. Its present membership includes many workers in organi-

zations other than state departments of rehabilitation and at this writing totals more than 8,000 persons.

The Association has opened a Washington office to observe and to inform members of the Congress, but since the recent war its policies have been equally concerned with the voluntary improvement of professional standards and performance. Substantial place has been given in its annual and regional meetings to the consideration of disabilities previously neglected. Rehabilitation of the tuberculous has received further impetus through such channels, and rehabilitation workers in the tuberculosis field have profited by the experience and skills of their colleagues who deal with other disabilities.

Unmet needs in rehabilitation of the tuberculous probably differ only in degree from those which obtain for other disabilities. One of the most urgent needs is for orderly, sound analysis of some part of the 21,000 state rehabilitation closures recorded for the tuberculous in recent years, presented according to acceptable statistical procedures. Experience with disabled persons in industry during the war years brought into question some of the most cherished generalizations current among both physicians and counselors regarding the adaptability of certain types of impairment. But the questions raised have not been fully answered by objective means, and we have only opinions based upon limited local experience, which not infrequently contradict each other. As physicians have pointed out, medical terminology in tuberculosis is constructed to facilitate diagnosis and takes little account of recovery. Inferences regarding prognosis which some diagnostic terms seem to imply are in some instances contrary to the facts. No one but the medical organizations can remedy this situation. Similarly, the physiology of destruction has been far more thoroughly explored and discussed in rehabilitation literature than the physiology of recovery and restoration to routines of life which may include normal employment.

However, another need of laymen may be listed. This is the further education of health and welfare workers regarding the nature and possibilities of rehabilitation. Each group has its own dialectic serving as the one criterion by which all things and ideas are evaluated. The health group will give attention to the preventive and therapeutic factors of rehabilitation, which are substantial when pertinent data are adduced. Public welfare officers tend to give most

attention to the demonstration of reinstated earning power in which vocational rehabilitation has made taxpayers of many tax-consumers.

We have named those needs which may be most readily attained. They do not end the list but lead to those further needs which may be served best by slow processes of education—for example, the development of a more general and more aggressive medical leadership on behalf of the recovering patient which can receive the full support of the conscientious layman.

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PART II

NEUROLOGICAL METHODS

REHABILITATION OF THE CEREBRAL PALSIED *

By WINTHROP M. PHELPS, M.D.

A certain number of fundamental definitions should be outlined in any discussion of cerebral palsy. *Cerebral palsy* is a term which has been used to connotate a group of conditions. It has been found that these conditions are very different from each other and consequently the treatment of them requires totally different techniques and forms of treatment. A single form of treatment for cerebral palsy as a whole cannot be found.

The old name *spastic paralysis* is the name of one of the five subdivisions of cerebral palsy, and if treatment is based entirely on proper treatment of spastic paralysis, the other four existing conditions will be treated incorrectly. Actually, spastic paralysis represents less than 50 per cent of the total cerebral palsy group, and hence more than 50 per cent of the total group would be treated wrongly if they were diagnosed and treated as spastic paralysis.

It is probable, also, that the greatest degree of mental deficiency is in the subdivision known as spastic paralysis, and mental deficiency is rare in most of the other forms, except the rigidities. Therefore, it would be, and has been, a great mistake to class the other conditions as spastic paralysis and give the impression that a great percentage of the total group is mentally deficient.

Cerebral palsy was selected as a term years ago, not by one person, but by a group of persons, because it seemed to describe this particular group of conditions the best. *Cerebral,* of course, means anything within the head, and *palsy* technically is a term used to describe anything which is wrong with the control of the muscles or joints.

The word *palsy* to many means a shaking type of palsy, the type that is, for instance, mentioned in the Bible as the "man with the

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palsy"; that type of palsy is actually a shaking palsy. Infantile paralysis is a palsy, but not a cerebral palsy. It is a spinal palsy, since the conditions arise in the spinal cord.

A gunshot wound in the arm, rendering the hand useless, would technically be a peripheral palsy, which is a palsy of the peripheral nerves in the extremities of the arms or the legs. Spasticity, athetosis, and ataxia are forms of palsy, and because the causes of these various forms of palsy are in the brain, they are best termed cerebral palsy.

The five general groups of cerebral palsy are spastic paralysis, athetosis, ataxia, rigidity, and tremor. Patients with spasticity have very "stiff" muscles and the spastic muscles show an abnormal stretch reflex. That is, when a muscle is moved, it contracts and prevents normal performance of the intended motion. In athetosis there is the presence of involuntary motion. The arms, legs, head, or face move involuntarily and to no purpose.

Ataxia, the third type of cerebral palsy, is a condition in which directional control and balance are disturbed. These patients are not paralyzed like the spastics; they are not in constant motion like athetoids. They stagger when they walk without conception of direction and space, and fall a good deal. They are unable to pick up objects because of loss of directional control. When not trying to direct purposeful motion, they are perfectly quiet and appear normal.

The rigidities are similar to spastics, but the muscles, although stiff and rigid, are not tense and electric and hyperactive like a spastic muscle, and the stretch reflex is absent. In testing, it is possible to push a spastic off balance and elicit a sudden rapid motion of all the muscles as compensation against falling. In the same test, with a patient suffering from rigidity, the patient would simply fall over without attempting protective muscle contraction.

In other types of cerebral palsy there might be the reaction of sudden contraction as in athetosis because the muscles actually work well, although without good control. In rigidity the muscles do not work well, and consequently there would not be this quick reaction to a loss of balance.

The fifth type of cerebral palsy is the tremor which, of course, is not often seen in children, but is much more frequently seen in old people. There are various types of tremor, but it is a form of cerebral palsy and must be included in the total group.

There are not often found combinations of these diagnostic types in one patient. Years ago a good many diagnoses of mixed types were made, but on checking through the records it is found that fewer and fewer diagnoses of mixed types are made. Probably where such a diagnosis was made in the past, it was because of inaccuracy. However, there are definitely some mixed types found from time to time.

The most common mixed type is the rigidity-tremor combination seen in patients who have had brain infections like encephalitis, which is an acquired type of cerebral palsy.

New findings on the causes of cerebral palsy are interesting. In the past it was felt that more cerebral palsy was the result of birth injury. However, when statistics were compiled on cerebral palsy it was found that there are always the same number of cases appearing each year and that these cases do not occur more in the urban than in the rural areas. They are not found in highly educated people any more than in people with no education whatever. There is no difference between the rich and the poor. There is no difference in whether the children are born in the finest obstetrical hospitals or delivered by midwives in isolated districts. The percentage of cerebral palsied children is exactly the same in the mining districts as it is in New York City. These factors definitely contradict the previous belief that birth injury is the dominant factor in cerebral palsy.

It could be said that there are compensating factors. In the country, where people live more natural lives and get more exercise, the children could be considered to be less susceptible to injury even if delivered by midwives because the mother's general physical condition is better. City people, who live a less natural life and ride in taxicabs during pregnancy, might be felt to be in poor condition, and hence more likely to have difficult births. However, these factors would not balance up so well. It seems now that cerebral palsy is probably in most cases the result of variations in the developmental structure of the brain.

In clarification of this we can, as a parallel example, take the size of mouths. If mouths of a thousand persons were measured, it would be found that 995 of them would have mouths varying in size, but within certain limits. Outside these limits a few would be found who had extremely large or extremely small mouths. The structure of the inside of the body is no different from that of the

outside, and there are similar variations between brains. It is perfectly possible, and it has been seen in specimens of brains which have been studied at autopsy, that there are tremendous variations in the structure of brains. If the structure of a brain exceeds the average variations, there will be variations in the functions which that particular part of the brain supplies. If structure is variable in parts of the brain which have to do with the moving of arms or legs, or face or tongue, there will be definite difficulties with the control of these extremities. The fact that these statistics are so regular would lead to the belief that such variations are probably responsible for a great part of cerebral palsy, and not so much injuries at birth.

It is known, certainly, that some children are injured at birth, and there is no doubt that some cerebral palsy is caused by injury. However, it is possible that an athetoid with a severe or moderately severe athetosis or involuntary motion, through a peculiarity in the development of the brain, may have been an athetoid before he was born. In that case he would probably have had athetoid motions before birth, and perhaps brought about a premature birth. It is also possible that because he twisted into an odd position before birth because of the athetosis, he had a difficult birth, or seemed to.

It can therefore be seen that if cerebral palsy is to a great extent due to variations in the brain structure and development, the possibility of eliminating the condition completely by research into special prenatal care and improvement in delivery care is practically nonexistent. There will always be variations in human structure. The human body will always vary in each individual; we shall never all look alike, and we shall never be formed exactly the same way internally or externally. As long as there are extremes in these variations, and there is no way of preventing extremes in development, there will be cerebral palsy.

There have been questions as to whether money, raised by various groups connected with cerebral palsy, should not be used in the field of research and possible elimination of the condition. Research will help to cut down the condition in all phases, but it probably will never be able to eliminate the problem. More time and effort should be placed on the elimination of the *effects* of cerebral palsy.

Cerebral palsy is not a condition which can be cured in the strict sense of the word. It can be improved to a point, in some cases, where unless a careful physical examination were made, it would be

impossible to differentiate the cerebral palsied from the normal individual. The patient himself would, of course, be aware of his differences, and the fact that he had to use different types of muscle control and activity.

As an example of this, a patient with a spastic hemiplegia had begun to feel depressed about her condition, although it seemed to be very mild. Whenever she went to camp in the summer her mother told the head of the camp to be very careful; the patient was not able to do what other children did. The camp would have to allow her special privileges. The camp director always became worried by these warnings and disliked accepting the child at all. At camp this child was set apart from the other children. Special care was taken that the child not be allowed to enter in the activities of the other children. When this patient was seen a year later, at the age of eleven, it was suggested that she go to another camp where she was not known. The mother was instructed to say nothing about the handicap.

The child was told to "play a game." She was told to see how long she could be in camp before the other girls found out there was anything the matter with her. She was told clearly that the other children would find out eventually, and that she was not to be disturbed by this, but was to try and see how long she could disguise her handicap.

During that first summer, the child reported that two weeks went by before her handicap was noticed. The next year she was sent to another camp. She was able to spend the entire summer without anyone discovering that she had a handicap of any kind.

That is the attitude to be aimed for. The patient's entire mental outlook changed, although she was still a spastic hemiplegia. She had developed a good attitude toward her handicap, minimizing it instead of centering her entire life around it. She became clever, so that if she was asked to enter into an activity such as baseball, which she could not handle, she would immediately specify another activity which she knew she could participate in. She built up many activities which she could do, and always emphasized these activities over others she could not attempt. This patient is now in college, and her parents are trained so that they do not mention the handicap. Her adjustment to college is excellent, and nobody there associated with her knows that she has a physical handicap.

This example proves that although the condition is not curable in the strictest sense of the word, there is a tremendous amount that can be done in rehabilitation, both physical and psychological. By learning how to handle a condition cleverly and not exposing it to things that are going to accentuate the handicap, these patients can approach the normal, in some cases almost completely.

Of course, in severe conditions the situation is quite the opposite. A condition that is so severe it cannot be hidden should be faced frankly by the patient and those associated with him. It cannot be expected that severely handicapped cerebral palsied persons can hide their condition. The actual frank acceptance of a severe handicap can be of value. In the instance of two girls, one was an athetoid with facial grimaces, and poor walking ability. She had difficulty in eating, spilling her food and drink. Her best friend was a girl with a heart condition. The second girl had a much more difficult time in their activities together than the athetoid girl. It was quite obvious that the athetoid girl could not run or climb stairs very well, and she was not able to play basketball because she did not have enough accuracy. There was no question about her inability to join in various activities. The patient with the heart condition could not run or climb stairs and could not play basketball, but her reason for not doing these things was not in evidence and she was extremely unhappy. She was constantly being asked why, and she had to give unending explanations that were very difficult for her. Of the two, the athetoid whose handicap was unmistakable had the much happier existence.

It is therefore emphasized that, in mild cases of cerebral palsy, part of the rehabilitation program can be actually that of handling the condition cleverly, whereas in severe conditions frank acceptance of the handicap is definitely part of total rehabilitation.

With regard to actual physical treatment of cerebral palsy, the treatment of spastics, athetoids, ataxics, tremors, and rigidity is all very different. There is nothing that can be written about the treatment of cerebral palsy. It must be divided into the specific treatment of the five separate groups, and therefore all research and literature written about spastic paralysis, meaning the entire group, is worthless because the results do not specify the type of cerebral palsy being studied. The term *spastic paralysis* as applied to the whole group should be eliminated entirely. It is the one thing that has held suc-

cessful treatment back more than anything else in the past twenty-five years.

The basic fundamental of treatment of all types of cerebral palsy is the fact that the automatic functions, such as reciprocal kicking, are not acquired. A normal baby of three months will kick a sheet off his legs in a bicycling fashion. If a sheet is put over the legs of a baby three months old and he kicks with both legs together and not reciprocally, that child is never going to learn to walk automatically. He is going to have to be taught reciprocation first. That activity is one of a hundred things that might be noticed in a newborn or young baby to determine whether or not automatic activities are present. There are just as many automatic activities in the arms as there are in the legs.

The sooner these automatic activities can be trained and established, the sooner a child will approach normal automatic activity. These otherwise normal activities are lost by damage to the brain, or absence of parts of the brain that control them, but there are other parts of the brain which are capable of being taught. Walking is never taught to a normal child. If a child were to grow up on a desert island all alone, he would certainly walk of his own accord. He would not have to be taught. The same is true of speech. Such a child might imitate birds or animals, if there were no people around, but he would talk in his own fashion. The reach and grasp function in the arms would also be automatically established, and he would be able to feed himself.

The parts of the brain concerned with taught activities are the same parts, for instance, with which a person would learn to play the piano. Playing the piano is certainly not an automatic activity; it is learned only through intensive training and practice. Training a child with cerebral palsy to walk or to use his arms or speak is a procedure just as long and needs just as much practice. If methods such as those used in training any skilled activity are used for training cerebral palsies in any activity and this training is started young enough, motor activities can be trained into a high degree of success. They will always be modified by the presence of spasticity or athetosis or ataxia or other conditions, but if they are not trained they will never be accomplished.

In some instances, teaching and training are not only neglected but actually restricted. This is shown clearly in the case of a patient

of seventeen years who, when seen for the first time, was walking and had always walked with the aid of a walker. The family of this patient was advised strongly to get rid of the walker and not to give it to anyone else because it would be just as harmful to anyone as it was to the patient. The patient was then taught reciprocation of the legs, which she did not know. She was totally unable to move one leg ahead of the other and had no conception of how it was done. She worked with a physical therapist for a period of six months, and after that time she was able to walk alone. She could have walked alone ten years before if she had not had a walker. It was such a convenient way for her to get around that she had never bothered with any attempt at actual walking and was never taught.

A walker has one use only, and that is for those who are never expected to walk alone. If a walker is given to a child, it is an indication that that child can never learn to walk. It is seen therefore that any substitute for normal walking is even harmful for some normal children, and it is therefore most dangerous for handicapped children.

The basic fundamentals of treatment, training in automatic activities, are carried out by six types of treatment. These are physical therapy, occupational therapy, speech therapy, braces, drugs, and surgery. Well-trained therapists in the first three fields of treatment will recognize, and can be told after a diagnosis has been made, which are the proper therapeutic procedures to use in the different types of cerebral palsy.

Any completely organized unit for the care of cerebral palsied children should be fully equipped to give to these children all these therapies in the proportions in which they need them. Certainly they must have well-trained physical therapists, occupational therapists, and speech therapists. Second, they must have persons who are well acquainted with the proper types of braces which are used in the different types of cerebral palsies. The braces, incidentally, are used for quite different purposes in spastics and athetoids.

The use of drugs is extremely important, and has a wider application than is usually thought. Prostigmine is a very fine drug but has been greatly overestimated in newspaper and magazine articles. It is not a miracle worker, although it has a specific indicated use for certain types of conditions in which it does help. It is unfortunate that it has been highly recommended as a solution to any prob-

lem as a whole, for the hopes of many have been falsely raised. Prostigmine is only one of the drugs used in cerebral palsy. Prostigmine is not harmful, and if it does the patient no benefit, it will not be detrimental to his general health. It is chiefly for this reason that it is being taken and prescribed for all cerebral palsies. Its use would be more selective, and less vaunted, if it were a harmful drug.

Other drugs used in cerebral palsy are in some cases helpful, but are very dangerous. Their use has not been recommended promiscuously, therefore, for any type of cerebral palsy. These other drugs, which need not be discussed in detail here, when used with the proper blood studies and with great care, will produce remarkable results in some patients.

Surgery is another form of treatment used in cerebral palsy. As in the case of drugs, surgery is helpful in some cases but valueless in others. Many cases of cerebral palsy have been seen where surgery has made the original condition much worse than it was previously. These errors have been made by everyone, but statistical and surgery studies during the past twenty years have shown that surgery in general is very disappointing in the majority of cases. Surgery will always have its place in the treatment of cerebral palsy, and with increasing study and analysis it will be found to be of increasing value in special instances.

One of the vital jobs in the field of cerebral palsy treatment is to arrange for the training of more young doctors in the field, so that treatment and care should be in the hands of more and more persons. This is true also of physical therapists, occupational therapists, and speech teachers. The training in all therapies in cerebral palsy should be treated as a postgraduate study, and this study should include for doctors all aspects of drug and surgical treatment.

Education of children with cerebral palsy is also one of the most vital problems. Because we are chiefly concerned here with physical rehabilitation, it has not been discussed, but it should be considered first and foremost in all training centers for these children. Because physical and mental rehabilitation of these children go hand in hand, it is impossible to get the best general progress without both fields of training. It is not feasible to take a child out of school for two or three years to give him physical reeducation. There must be, therefore, the closest cooperation between the medical and educational fields in handling the whole problem of cerebral palsy.

THE EPILEPTIC MADE SOCIALLY USEFUL

By WILLIAM G. LENNOX, M.D.

The word *rehabilitation* as generally used means training that prepares for the employment of persons physically handicapped. This is a conception too narrow to fit the broad medical and social problems of the epileptic. The Century Dictionary's definition of *rehabilitation* is more applicable: "to restore to a former capacity or standing, or to re-establish in the esteem of others or in social position lost by disgrace." The "restoration" of the epileptic is not only individual and physical. It means doing away with popular misconceptions about seizures and the person subject to them.

Unusual Features of Epilepsy

The problem of epilepsy differs from that of most other handicapping conditions in at least four respects.

1. The disability is paroxysmal rather than constant. In contrast with a person who has lost his eyesight, his hearing, or an extremity, the acute illness lasts for only minutes out of a week, a month, or a year. For all but this minute fraction of their time, most epileptics are just as capable as individuals picked at random from the general population.

2. The greatest diversity exists in the cause and the degree of disability. As for cause, there is, first, genetic epilepsy, in which a tendency to a seizure has been transmitted. Contrary to popular opinion, this type is preferable to the second. The latter—acquired or symptomatic epilepsy—is due to some damage to the brain acquired after conception, a circumstance that increases disability and complicates treatment. Within each of these groups there is great divergence of severity, depending on the type and frequency of seizures and the presence or absence of mental or personality disorders.

3. The prospect for relief from seizures (and from the need for rehabilitation) depends on the effectiveness of medical or surgical

treatment. Success in this area depends on the experience and interest of the physician and on the response of the patient to the therapy instituted. For example, increase of the dose of dilantin from three capsules a day to four or five may make him an epileptic no longer.

4. The disability of epilepsy may be more social than physical. The able-bodied man who "can't get a job" because he has had seizures might as well be confined to a wheel chair. For the public to support in idleness thousands of able-bodied and able-minded persons simply because they are unable to work for a few hours or days out of the year is extravagant folly.

The different types of seizures require additional explanation.

Seizures

The manifestations of epilepsy are many, but most patients are subject to one (or sometimes two) of the following three manifestations.

1. *Grand mal* (major epilepsy). In this type, the person suddenly loses consciousness, becomes rigid, falls, and has spasmodic jerking of the limbs. This lasts from one to several minutes and is usually succeeded by a deep sleep. In about half of the cases the unconsciousness is preceded by warning symptoms which may permit the patient to lie down or seek seclusion. Those who have no warning may be injured in the fall, and they should not work at a height or with unprotected machinery.

2. *Petit mal* (pykno-epilepsy). This form occurs only rarely in adults. The person merely loses consciousness for from five to fifteen seconds, but he does not fall or have convulsive movements. Such attacks are a handicap only in situations in which continuous attention is imperative, such as the operation of moving machinery or vehicles.

3. Epileptic equivalents (psychomotor seizures). In this type, which is relatively infrequent, there is a loss of consciousness for a few or many minutes. The person may maintain his balance, though his muscles are tense. Other persons may wander about in a state of amnesia, acting as though confused or intoxicated. If the person is protected by a companion or fellow workman, there is little danger of injury.

A person may be subject to more than one type of seizure. The greatest diversity exists in the frequency and severity of attacks. Like the symptoms of headache, recurrent attacks may be of little consequence or they may be incapacitating. An epileptic seizure may assume almost any form; hence differentiation from fainting or hysteria and determination of the cause of seizures requires competent medical examinations and advice.

CAUSES. In about one fourth of the cases some injury to the brain is primarily at fault—injury resulting from a severe blow, encephalitis, meningitis, a tumor, or hardening of brain arteries. Seizures may also result from disorders of body function such as a great lowering of the blood sugar, or some terrifying experience may bring an underlying tendency to the fore. The much more usual cause is an inherent "weakness" or predisposition to seizures. This may be present even when a family history of epilepsy or migraine is absent.

CONSEQUENCES. About 10 per cent of epileptics who are outside of institutions become too dull mentally to be employable. About 10 per cent have difficult personalities, being stubborn, irritable, suspicious, and opinionated. Others have physical disabilities. Altogether perhaps a third of adult epileptics are not proper subjects for training or regular employment. The remaining two thirds can give a good account of themselves if given a chance and properly placed.

The limitations which society has imposed may be as serious as handicaps which are physical, but they are subject to correction. Discouragement, frustration, feelings of inferiority resulting from social loneliness and denial of opportunities for work or study because of the possibility of a seizure—these psychological handicaps may disappear under the influence of satisfying occupation.

New Methods of Diagnosis and Treatment

A new attitude toward seizures is possible because of the results of medical research in recent years. The electroencephalograph, an instrument which records the electrical currents of the brain, has proved to be of great use in differentiating epilepsy from fainting or hysteria, in locating brain injuries or tumors, in indicating the seriousness of the case, in suggesting the best drug to be used, and in

following the success of the treatment. The best apparatus and experienced interpretation of the records are needed for dependable results, so that this aid will be generally available only slowly.

Immediately available are medicines which have been developed in recent years. For several decades a sedative drug, phenobarbital, has been the chief protection against seizures, especially convulsions (*grand mal*). In recent years two nonsedatives, dilantin and mesantoin, have proved even more effective against both *grand mal* and psychomotor seizures. Unfortunately, many physicians have not learned how to obtain maximum results from these drugs, often prescribing inadequate amounts. A third drug, tridione, usually controls the second type of seizures—the transient lapse of consciousness called *petit mal.*

Not all patients respond equally well, but under experienced and persistent medical direction at least three fourths of patients can expect to be relieved of at least three fourths of their seizures. Many, of course, are completely freed.

Occupations

CHOICE OF VOCATION. The best occupation for anyone is that for which he has a natural aptitude and liking. In helping the epileptic to choose a vocation, the primary consideration must be his natural talents and preferences, his intelligence, the economic circumstances, and the opportunities, local or general, for the carrying out of plans.

Whether the person with seizures can get and hold work which he likes depends a great deal on the quality of his medical care and on the frequency and severity of his seizures. In addition to the medical history, constructive advice will take into consideration the person's intelligence, his aptitudes, his personality, his school or work history, and his social backgrounds and psychological conflicts. Epileptics have fewer attacks when busy, and a patient who has been either overprotected or ostracized will often blossom out when given a chance to study or work in a normal way with his fellows.

The individual's intelligence, personality, and determination should weigh more heavily than the frequency of seizures, for the latter are presumably susceptible of control. However, a dulled intelligence may be more apparent than real. The person may be overdosed

with bromides or phenobarbital, or else he may suffer from discouragement and social isolation—conditions which can be remedied.

EDUCATIONAL GUIDANCE. Among noninstitutional patients without brain injury, intelligence ranges from average or a little below to the near-genius level. A good education increases chances of employment and of self-respect. Enlightened colleges and universities do not refuse the epileptic student if his attacks are not too frequent and severe, if he is receiving competent medical treatment, if the parents will release the school from all blame for accident, and in some cases if a satisfactory roommate can be provided. At college age, the natural tendency of seizures to decrease may come to the rescue. A follow-up of eighty epileptic students at the University of Michigan showed that the proportion who graduated and the postgraduate accomplishments were satisfactory. This school was blessed with a competent health service.

OCCUPATIONAL GUIDANCE. The obstacles which face a person who is subject to seizures must be coolly appraised. If an employee has a seizure while at work, too often commotion and fear are created, especially if the fellow workers are women. An even more substantial obstacle is the fact that compensation laws make the employer liable for any injury which occurs to the person while at work. The latter is not allowed to waive his rights. In spite of the absence of evidence that epileptics and other handicapped workers are subject to injury to any unusual degree and that insurance rates are thereby raised, most employers will not knowingly engage an epileptic. A seizure on the job is oftentimes a cause for discharge, and the epileptic with frequent seizures now makes the rounds of positions until the possible jobs are exhausted or his own courage gives out.

Successful placement in a training program or in industry depends on an understanding of the individual and of the essentials of job placement. The adviser should read one of the popular books which describe epilepsy. He should converse with, or have a report from, the patient's physician. The employer should be aware of the person's condition in order to cooperate intelligently in job placement.

UNSUITABLE OCCUPATIONS. Jobs not suitable for epileptics may be placed in three classes. First are the occupations categorically forbidden because the lives of others may be endangered. These

include the operation of rapidly moving vehicles—airplanes, automobiles, elevators, streetcars, or buses—and such positions of responsibility as surgeon in major surgery, private duty nurse, trapeze performer, solitary watchman or lookout, and swimming instructor.

Second is the operation of machinery of such a nature or work at such a height that temporary loss of consciousness might injure the person himself or the machine. These occupations include house painting, bricklaying, welding, and machine-tool operation. The use of safety appliances may in some cases mitigate the danger.

Third are occupations subject to prohibitions which arise from popular reactions and prejudices. In this group, a controlling factor is the number of eyes focused on the person. The stage, the concert platform, or the pulpit is a more vulnerable position than a desk or a counter. Nevertheless, we have had as patients ministers, college professors, public school teachers, legislators, and bankers. Positions which entail contact with the public are not inherently unsuitable, but retaining them depends on the tolerance and intelligence of that particular segment of the public which may be looking on, and on the popularity of the patient. When persons who make up the public learn that, fundamentally, epileptics are not different from themselves and that a seizure is nothing to be ashamed or afraid of, the number of positions open to epileptics will be multiplied. A person cannot be advised flatly against entering occupations in this third group, because in his case treatment may establish complete seizure control or public sentiment may change. Again, the wide variations which exist must be emphasized. One person may be subject to severe convulsions but have them only during sleep; another may have *petit mal* attacks so brief that he is unaware of their existence, yet as operator of a fast-moving machine he would be a public menace.

Those noninstitutional patients who can be only partially productive and who require close supervision may find employment in special workshops. Here the type and volume of work are suited to the individual's capacity, he is under medical direction, and his earnings are commensurate with his output. An example of such an effort is the Community Workshops in Boston (a Red Feather Agency) for various types of handicapped persons, including selected epileptics. Vocational training is given by the Workshops whenever the seizures are sufficiently controlled, and following such training patients are placed in regular wage-earning jobs.

SOCIAL HANDICAPS. Evidence which has been published makes clear the fact that from the physical standpoint the great majority of epileptics are worth training and can be productively employed. Their handicap is more social than physical. "Rehabilitation" of epileptics implies rehabilitation of popular opinion and eradication of popular prejudice as these relate to seizures and those who are subject to them. Fellow employees and employers—and not just epileptics—require education.

The American Epilepsy League, with offices in Chicago, is an important agency for the education of the public. It is doing much to correct the many fears and to refute the misinformation which has long gone unquestioned. Efforts of this and other organizations which have to do with epileptics, added to the fruits of further medical research, should result in still better medical and social treatment of epileptics and broaden their vocational opportunities. The League has books and pamphlets, some of them listed at the end of this article, for the use of organizations which encounter the problems of epilepsy.

PUBLIC AGENCIES. The attitude and decisions of public officials are of increasing importance in matters of vocation. The United States Civil Service Commission does not reject the applications of epileptics for sedentary desk positions, provided "the person is under medical supervision and the disease is well controlled." This statement is in sharp contrast to the assumption expressed in the laws of certain states that epileptics "are unemployable." A constructive and helpful attitude has been adopted by the United States Employment Service, and its manual dealing with handicapped individuals is a useful organ for popular education. Aids which the public might profitably extend to epileptics will be found in the United States Government pamphlet which records the testimony given at a hearing before a Congressional Committee on Aids for Physically Handicapped on May 24, 1945.

THE EPILEPTIC SERVICE MAN. War has enlarged the number of epileptics and sharpened their needs. The armed services do not accept epileptics, but curiously enough epilepsy was the second most frequent cause for medical discharge from the Army in 1940. Battle wounds to the head will increase the number of the most serious cases of epilepsy—those with injuries of the brain. Service men who

are fully incapacitated must be placed in veterans' hospitals or receive compensation for permanent disability. When they have only seizures, without other physical or mental disability, they should not be psychologically crippled by making their continued support contingent on their continued sickness. They should be treated as normal persons and the effort of the government concentrated on making a place for them in industry. Enlightened treatment of service men and women should open the way for proper treatment of civilian epileptics by the general public. Under the G. I. Bill of Rights epileptic veterans are entitled to further education or training and, if seizures arose "in the line of duty," to medical care. Unfortunately, such care does not begin to utilize the knowledge about epilepsy and its treatment which has been gained in recent years. For the veteran, an advanced program and a "National Veterans Epilepsy Center" have been established.

All the handicapped (and this term may well include those held back by any illness or by social limitations) will benefit from a wider diffusion of medical knowledge and of human kindness.

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THE TREATMENT OF MULTIPLE SCLEROSIS

By ORTHELLO R. LANGWORTHY, M.D.

Multiple sclerosis is a neurologic disease which is likely to have its onset during the early adult years. Often it is progressive in its manifestations so that the patients become invalids, dependent on family or institutional care. Since the etiology of multiple sclerosis is not known, any consideration of therapy must grasp at half-truths. At any time that a specific treatment is shown to be effective, the suggestions presented here may seem irrelevant and useless. This discussion is based upon the consideration that the physician is called on to treat a patient with a disease, and not a disease alone. Thus therapy is designed to help a patient affected by a condition which cannot now be radically cured. My presentation is designed to be somewhat unconventional inasmuch as I propose to consider, in addition to the disease, the type of person who is likely to have the disease, the attitude of the patient, and the attitude of the physician. This treatise will seek for a broad prospective on the problem in a search for factors which may be modified for the better.

Prognosis

Probably the standard articles dealing with multiple sclerosis take too gloomy a view of the prognosis. They give the impression that the patients become permanently disabled and die within a few years of the onset. I find that physicians are astonished when patients with multiple sclerosis do well. In stressing the optimistic side it should be realized that remissions may last for thirty years. I have reported the case of a man with complete paralysis of the legs in 1928. This person now works every day, is married, and leads a normal life. Recently I saw two patients who came to consult me about returning to work. The diagnosis of multiple sclerosis had been made by other physicians. There was a typical history of remissions and there was no reason to doubt that the diagnosis was correct. One of them had improved for twelve years and the other

had lost most of his symptoms. While these instances of improvement may be unusual, they tend to lessen the certainty of a gloomy future in the minds of both the doctor and the patient. As a result of a statistical study Kolb, Langworthy, and Cakrtova (2) concluded, "Individuals with multiple sclerosis live longer than is commonly thought, but their risk of dying is greater than that of the rest of the population."

It is better to emphasize that patients with multiple sclerosis may continue to live a normal and useful life. Unless the therapist is convinced that the patient can be helped, he is impotent in any treatment situation. I propose to take an optimistic but also a realistic point of view. After following these patients for a number of years it is apparent to me that a certain number show great improvement either with or without treatment. In others the disease process is apparently arrested at some point and shows no tendency to progress. These individuals are fortunate, if this arrest occurs before they are severely handicapped by permanent changes in the nervous system.

Theories Concerning Etiology

Before considering treatment, present opinions concerning the etiology of the pathologic process may be considered briefly. Although multiple sclerosis has often been considered an infection, no positive evidence of an infectious factor has ever been demonstrated. Recent studies have shown that lesions similar to those found in multiple sclerosis can be produced experimentally on an allergic basis (Rivers and Schwentker, 6, and Ferraro, 1). After animals are sensitized to brain proteins they develop areas of myelin loss scattered through the white matter of the nervous system. Whether this allergic process is active as a causative factor in all patients with multiple sclerosis is a matter for further study.

The work of Putnam (5) gives the broadest basis for investigations of etiology and treatment. He showed that the areas of myelin destruction surround small blood vessels and are often symmetrical on the two sides of the neural axis. He demonstrated that any process which tends to close small blood vessels in the brain produces typical areas of myelin destruction surrounding the occluded vessels. The thrombosis usually involves small blood vessels on the venous side of the circulation. This has led to a general theory that any

factor which tends to occlude small blood vessels in the central nervous system produces myelin destruction and may give rise to the characteristic symptoms of multiple sclerosis. An allergic reaction would then take its place as one factor which might lead to vascular occlusion.

There are certain clinical observations which support this theory of a vascular basis for the disease. In patients with multiple selerosis spasms of the retinal vessels have been observed with the ophthalmoscope. A peculiar disease was observed in a group of Navy personnel fighting in the Pacific area (Zeligs, 7). They developed central scotomata resulting from damage of the macular area in the retina. Some recovered their sight, but in other cases the visual cells were lost and a shallow pit replaced the macula. It was concluded that these retinal injuries were the result of vascular spasm. Moreover, the opinion was presented that this spasm had an emotional basis. The literature is full of vague suggestions that the onset of new symptoms in patients with multiple sclerosis may be related to emotional turmoil.

An Understanding of the Pathologic Process Makes It Clear That Treatment Is More Effective in the Early Stages of the Disease

The areas of demyelination in the nervous system are widely scattered in position and thus may give rise to many different symptoms, depending upon the function of the nerve pathways which are injured. They are also scattered in respect to time as well as space. Thus histologic studies are likely to reveal fresh areas where the myelin is breaking down and old lesions where the injury has healed by the formation of a glial scar. Patients are likely to develop new symptoms at different times. With a series of relapses they usually become more and more incapacitated.

The irreversible changes in the nervous system can be understood in the following way. At first the myelin sheaths covering the axones break down. These fatty sheaths may be considered as insulating substance, and their loss causes a disturbance of function. At first most of the axones remain intact. At this stage the process appears to have the possibility of some reversal. If this does not

occur, a glial scar develops which pinches off the axones and leads to permanent and irreversible damage.

Brickner laid down an important principle in assessing the value of treatment. He pointed out the value of making a list of symptoms and disabilities in chronologic order before any therapy is begun. Adequate treatment would hope to influence the symptoms which have been present for only a short time. It is probable that a symptom which has been present continuously for over six months is so firmly established that it cannot be influenced, inasmuch as the changes in the nervous system are now irreversible.

The aim of treatment should be directed primarily at prevention of further damage to the central nervous system. Secondarily an attempt may be made to alleviate symptoms which have already developed and help the patient compensate for disabilities which have become firmly established.

Many cases of multiple sclerosis show periods of complete or almost complete remission of symptoms or signs. These remissions occur characteristically in the early stages of the disease. Treatment is obviously of the greatest value when it is used in this early stage where there is hope that further progress of the process can be avoided and the patient can continue to function as an active member of society. It must be realized that some cases of multiple sclerosis give no history of remissions. In these instances there is often some question of diagnosis. In its statistical surveys the medical board of the Multiple Sclerosis Society insists on a history of remissions as a criterion of multiple sclerosis.

The evaluation of treatment is rendered difficult because of the tendency to spontaneous remissions. It is also complicated by the fact that these patients respond so favorably to any kindly interest in their problems. After an interview in which they are able to air their feelings they are enthusiastic and maintain that they are greatly improved.

The Patient Who Develops Multiple Sclerosis

In the hope of throwing some light upon the problem from another angle I have been interested in the type of person who is likely to develop multiple sclerosis (Langworthy, 3). Do certain individuals

have a special predisposition for the disease? Does multiple sclerosis develop out of emotional conflicts in the personality? So little information is available that no generalizations can be made, but this may be a fruitful field for further consideration. Emotional factors may be important in one group of patients and not in others. Indeed patients with this disease differ so much in the symptoms, tendency to remissions, and duration of life that it can almost be thought of as a syndrome and not a disease. Tension could lead to vascular spasm or occlusion. Thus it may be one of many etiologic factors in the disease process.

The early symptoms of multiple sclerosis are often bizarre and unassociated with clear-cut physical signs. Thus the diagnosis of conversion hysteria is made. Later objective signs of damage to the central nervous system are manifest and the diagnosis of conversion hysteria is rejected for multiple sclerosis. In a small group of patients with whom I have become familiar, I found that symptoms of conversion hysteria may be present before or after signs of organic disease appear. These individuals showing neurologic changes typical of multiple sclerosis had a personality structure typical of conversion hysteria. They were emotionally immature persons who had not grown emotionally to the place where they could make adult sexual adjustments. In a characteristic way they were able to convert anxiety which was frequently related to sexual matters into physical symptoms. One example will illustrate this conclusion. A woman who had been treated for multiple sclerosis for several months and who showed clear-cut organic changes developed hysterical aphonia. This occurred at a time when an illicit sexual attachment was likely to be exposed.

Patients with multiple sclerosis are likely to be passive individuals who have the desire to be more aggressive and dominating. The symptoms of multiple sclerosis may develop at a time when their efforts to assume a dominant role are thwarted. Why these individuals at times are able to convert their anxiety into typical hysterical symptoms and at other times develop organic symptoms is a matter so obscure that it cannot be discussed with profit.

It has often been noticed that individuals with multiple sclerosis show little anxiety. Physicians have wondered at the mild euphoria with which they often seem to meet the situation. Possibly this can be understood on the basis that their anxiety is converted into symp-

toms. The anxiety and hostility do break through at times and it is in these periods of instability that new symptoms are likely to appear.

In women with multiple sclerosis the symptoms are also likely to develop or be accentuated during pregnancy or the puerperium. This is often a time of great emotional stress, and the attitude of the patient toward the pregnancy and the responsibility of caring for the child would repay further investigation.

Often individuals with this disease show great vasomotor instability during the periods of tension and at times when symptoms appear. This is frequently evident to the patients, who notice that their extremities become cold and blue. Zeligs in discussing the retinal disturbances in military personnel already mentioned suggested that they were a form of vasoneuropathy similar to migraine.

Attitude of the Patient

There is a tendency for patients with multiple sclerosis to wish to relate to the physician with a great feeling of dependency on a strong figure who is interested in them and eager to help them. This dependency can be understood as a natural reaction to a frightening situation. It may have the further implication that the patients are dependent, child-like personalities even when well and the disease accentuates their dependent needs. The patients have probably been made aware of the seriousness of the disease and the possibility of becoming totally incapacitated. They dread being a burden to their families or being forced to enter a public institution for care. They resent the fact that they cannot take part in normal human relationships, that they are incapable of earning a livelihood, and that they are cut off from normal pleasures and amusements.

Since anxiety and hostility are largely converted in these patients, the early patient-physician relationship is built on the patient's dependent needs. Later the patient may allow himself some expression of his fears and annoyances. By encouraging this expression of frightening attitudes the physician can help toward further emotional growth.

The Attitude of the Physician

Many physicians find it difficult to treat multiple sclerosis, which they consider a chronic and fatal disease. They visualize no way

in which they can be useful in allaying the symptoms or making the patient more comfortable. They are themselves distressed and anxious when they feel that they are caught in a hopeless and chronic situation.

Doctors usually feel comfortable in taking an aggressive role in attacking disease and have a strong sense of responsibility to get the patient well. They prefer to cut out the disease process with a knife, although needles and pills may be an acceptable substitute for operation. It is only recently that the physician has begun to recognize his great potential value as an interested listener and observer. It is self-respecting for the patient as well as the doctor that the patient should take a large responsibility in getting himself well. The statement of Paré is widely quoted, "I bound up their wounds and God cured them." Now we might say, "I bound up their wounds and the patients cured themselves." It is in this more passive role of therapist that the physician can be of greatest value to the patient with multiple sclerosis. This role is time-consuming, since the patient must be allowed freedom to express his feelings.

Morale Building

Since the disease cannot be attacked directly, any therapy must deal primarily with the patient and only secondarily with the disease. In writing of this matter for the Multiple Sclerosis Society I avoided the term *psychotherapy* and spoke of morale building. Morale-building may be defined as an attempt to help a patient to deal more adequately with the problems of daily living and to develop more satisfactory interpersonal relationships with others. Thus a plan for rest, massage, and active and passive exercise may be of value to the patient out of all proportion to the specific treatment, depending on the patient's relationship to the persons who plan and direct the treatment.

The therapist can best serve the patient as a wise counselor who helps him to deal with anxiety, to work out ways of overcoming physical handicaps, and to develop positive interests which make the situation more tolerable. Since new symptoms often appear in a setting of anxiety and tension, an endeavor to come to grips with these feelings may prevent further progress of the disease. Morale building should be constantly in the mind of the physician,

because the most insignificant attitude displayed by a patient may be of profound importance either in a positive or negative direction. The physician should first define his own attitude toward the disease. If possible he should assume a mature perspective which is realistic but takes into account plastic features as well as those which are unmodifiable. The physician who has responsibility for therapy is confronted with treating the problem which the disease presents to the patient and aiding the patient to deal with the disease in an effective manner. The most helpful attitude is to consider that this disease, like any serious life problem, presents a challenge which the patient needs to meet effectively. Though the disease is a serious liability, which need not and cannot be minimized, there is available to the patient the satisfaction of coping with and "mastering" the liability.

Before informing a patient concerning specific features of the disease and factors which are likely to bring on new symptoms, it is wise to estimate the patient's capacity for dealing effectively with anxiety. Otherwise new fears may be introduced which will only aggravate the situation. After a good patient-physician relationship has been established, palliative drugs may have beneficial value out of all proportion to the value of the drug itself. This good relationship is easy to develop, for the patient is seeking frantically for some understanding person who is willing to listen to his problem. The function of the physician is to listen in an understanding way and to give a minimum of directive advice. The physician should rather assist the patient to arrive at his own conclusion. By sympathetic listening the doctor helps the patient bring into sharper focus his own plans for dealing with the illness in an effective way.

Under the heading of morale building the Multiple Sclerosis Society (4) plays an important role. It spreads the latest information concerning treatment of this disease to patients and physicians. The patients have an opportunity to support research projects delving into the nature and treatment of multiple sclerosis. The Society is attempting to gather accurate data concerning the incidence of the disease and the effect of climate upon the symptoms. Clinics have been set up for treatment.

Other forms of treatment at present in use can be divided into (a) those aimed at avoiding noxious factors likely to increase the dis-

ability, (b) those founded upon current theories of the etiology of the disease, and (c) those aimed at alleviating individual symptoms.

Avoiding Noxious Factors

There are certain circumstances which are likely to activate new symptoms related to the onset or progress of multiple sclerosis. These noxious factors include cold, damp climates, acute or chronic infections, pregnancy, fatigue, obesity, and injury. In discussing the avoidance of these matters with the patient it is often found that the anxiety developed in the patient does more harm than the factors under discussion. Thus one patient was loath to go outdoors on a cold day for fear her legs would be paralyzed. Advice to move to a warmer climate precipitated a depression requiring hospitalization for eighteen months.

There is some evidence that multiple sclerosis is more common in cold, damp climates and rare in mild, dry climates. Exposure to cold sometimes appears to induce symptoms. Whether the vasomotor disturbances which these patients show are related to the climate or are merely a symptom of vasomotor instability is a matter of controversy. It is taught that patients who move from an unfavorable climate to a mild, dry one have fewer relapses and tend to go into remission. This change of residence is often a difficult practical matter but may be considered in a realistic way.

Acute infections such as the common cold are likely to make the patient with multiple sclerosis much worse. Avoidance of acute infections is desirable but difficult to attain. The effect of climate perhaps lies chiefly in the influence on infection. A search should be made for foci of infection in the sinuses, tonsils, teeth, or prostate and any chronic infection should be eradicated. If an operation is required, any anesthetic which is a fat solvent should be avoided.

In women the onset of relapses of multiple sclerosis is often related to pregnancy. We do not know whether this relation is dependent on the physiological strain of childbearing or on the emotional problems related to the bearing and raising of children. While a physician is bound to point out the practical dangers of pregnancy, the final decision should lie with the patient. Resentments related to an insistence that pregnancy should be ruled out of consideration may do more damage than the pregnancy.

There is some evidence that fatigue contributes to an increase in symptoms. Freeman has recently urged that patients undergo a prolonged rest treatment. The value of this course has not yet been established, and it may go under the heading of psychotherapy. Certainly it is wise for these patients to operate well within the limits of their strength.

There is no indication that any specific dietary factor has a bearing on the disease. Patients are usually urged to ingest a liberal quantity of vitamins, particularly the B complex, but there is no reason to think that this is more than a morale factor. Some physicians urge a liberal ingestion of cream and butter in the hope that a high fat diet might increase the tendency to myelin formation. This seems of doubtful value. Certainly those patients who are forced to be relatively inactive may gain weight. This is a disadvantage, since spasticity or ataxia often make the added pounds a greater strain to locomotion. While weight should remain within the limits of normal, rigid diets are said to be dangerous. The role of injury is difficult to evaluate. It has been said that trifling traumata such as lumbar puncture or venipuncture may appear to precipitate attacks. This is perhaps related to the development of anxiety.

Treatment Founded upon Current Theories of the Etiology of the Disease

Several new methods of treatment have been founded upon the hypothesis that the symptoms are the result of occlusion of small blood vessels in the brain. There is no evidence that any of these are of value apart from their influence in boosting the morale of the patient who feels he is being given special care. They require a good deal of supervision and experience to avoid harmful results. My feeling is that they should be tried by a few persons as an experimental project to assess any value which they may have and that most physicians should avoid taking responsibility for them. I do not advise their indiscriminate use. They are described in a pamphlet published and distributed to physicians by the Multiple Sclerosis Society (4). Dicumarin (Dicumerol) has been used to lengthen the clotting time and thus prevent thrombosis (Putnam). Histamine has been advocated by physicians at the Mayo Clinic for its effect

upon the vascular system. Other vasodilating drugs have been tried. Sympathectomy has been advocated by some, but its use appears to have been abandoned.

Treatment Aimed at Alleviating Individual Symptoms

This type of treatment presents a field where satisfying results may be expected, for it is clear that patients may receive considerable benefit from an attack upon individual symptoms.

Physical therapy offers an ideal setting in which to develop morale building. Indeed one authority in this field attributes his good results largely to psychotherapy. Excellent results have apparently been obtained in a number of cases of chronic multiple sclerosis by muscular reeducation. An attempt is made to restore function by the education of substitute pathways in the nervous system. Rehabilitation seems doubtful or impossible in a severely handicapped person who has been confined to a wheel chair for many years. Cerebellar disturbances are prominent in the later stages of the disease. Indeed Charcot's triad of nystagmus, scanning speech, and intention tremor can all be related to damage of cerebellar function. Since these symptoms are due to injury of cerebellar pathways and not to the cerebellum itself, compensation by other pathways does not readily occur.

The following recommendations are made as the result of experience obtained in the Department of Rehabilitation and Physical Medicine, Bellevue Hospital, New York. "The methods which have been found useful in disabilities which limit motions of the joint, weakness, spasticity, and incoordination of muscles are the physical modalities, heat, water, massage, and therapeutic exercise. Therefore, the use of physical and occupational therapy and rehabilitation procedures is useful in the symptomatic treatment of multiple sclerosis." It is essential that the physical therapist evaluate joint motion and muscle strength and function. A functional activities test examines the patient's ability to carry on activities essential for daily living. Massage accelerates the flow of blood in the skin, subcutaneous tissues, and muscles. It also has a sedative effect on the nervous system, relieving spasm and rigidity. Warm baths tend to produce relaxation of the muscles and relieve pain. Passive movements are useful in overcoming spasticity and contractures of mus-

cles, adhesions in the joints, and tightening of ligaments. They tend to prevent deformities which may interfere with the use of muscles should remission occur. Active movements and the arts and crafts activities are used by the therapist to strengthen the muscle groups, to prevent atrophy from disuse, and to maintain and re-establish coordination.

Curare and neostigmine (prostigmine) have been used for the control of spasticity. The value of these drugs is controversial, and there is little evidence to prove that they are of use.

Patients with widespread injury of the pathways in the central nervous system are likely to develop considerable difficulty with bowel and bladder function. There is evidence that the complaint may show some variation related to the pathways in the nervous system which are involved. In many patients these matters must be given consideration. The bowel difficulties may be relieved by diet or mild laxatives. The urologist may be able to evaluate the bladder disturbance and give helpful advice as to therapy.

Summary

Certain patients with multiple sclerosis show prolonged remissions with sufficient freedom from symptoms so that they can lead a fairly normal life. Any treatment is more effective in the early stages of the disease. Since the etiology of the disease is unknown and no specific treatment is available, it is important to focus attention on treatment of the patient and his problems. The patient should be urged to develop helpful attitudes by means of which he can cope with his handicaps in a positive way. This is discussed as morale building. To further this therapeutic plan, the attitudes of both the physician and patient are important. Physical therapy offers a satisfactory setting to promote this type of therapy. Individual symptoms can often be alleviated. New methods of treatment based on an etiologic approach are still in the process of development, and none of them seems to be helpful.

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EARLY REHABILITATION OF PATIENTS WITH ACUTE ANTERIOR POLIOMYELITIS BY THE USE OF CURARE AND INTENSIVE PHYSICAL THERAPY

By NICHOLAS S. RANSOHOFF, M.D.

A method of treatment of acute anterior poliomyelitis has been developed which shortens the rehabilitation period of the patients. The method utilizes the relaxing effect of curare and intensive physical therapy from the time that the diagnosis is made.

Diagnosis

To make a diagnosis of acute anterior poliomyelitis, three criteria must be met. These are:

1. THE HISTORY AND CLINICAL PICTURE OF THE PATIENT. The clinical findings are among the following: stiff neck and/or back, general malaise, coryza, sore throat, headache, nausea, vomiting, diarrhea, constipation, pain in neck, back, abdomen, or extremities, swollen glands, temperature, loss of normal muscle length, muscle paresis or paralysis, swallowing or respiratory difficulties. These are the long-accepted symptoms and signs of the disease.

2. THE LABORATORY FINDINGS. Spinal taps are done on all patients referred to the hospital with a possible diagnosis of acute anterior poliomyelitis. Primarily, this is to rule out other diseases such as the meningitides. The white cell count differential and protein and sugar determinations are of importance. A blood count, urine, Wassermann, and patch test is done routinely upon admission.

3. ELECTROMYOGRAPHIC STUDIES. Each patient is myographed while his spinal fluid is being examined in the laboratory. The five common findings in electromyograms of patients with acute anterior poliomyelitis are:

a. Resting action currents
b. Disordered reciprocal innervation
c. Disturbed cross reflex (Brudzinski)

d. Pathological stretch reflex
e. Activity in leg muscles upon passive neck flexion (Brudzinski)

This diagnostic survey can be completed within an hour.

Treatment

CURARE DOSAGE AND ADMINISTRATION. Each patient is weighed and given 0.9 unit of curare (Intocostrin-Squibb) per kilogram of body weight every eight hours for the first twenty-four hours. If no contraindication arises, the dosage is increased to 1.5 units per kilogram of body weight every eight hours. This dosage is maintained until there is no clinical or myographic evidence of loss of muscle length. The curare is administered by intramuscular injections in the upper outer quadrant of the buttock. It is given *after* meals rather than before and each patient is kept lying down for forty-five minutes after each injection. With this dosage, the pharmacological effects to be expected are blurred vision or diplopia, slight dizziness, or weakness. Along with this pharmacological action, there will be some muscular relaxation and relief of pain. Certain precautions are observed, such as the close observation of patients for thirty to forty-five minutes after administration of the drug. Prostigmine, the pharmacological antidote for small doses of curare, should be kept ready in a hypodermic syringe for immediate use in case of an unfavorable reaction. At the Monmouth Memorial Hospital in Long Branch, New Jersey, over 20,000 injections of curare have been given, and prostigmine has been administered only three times.

PHYSICAL THERAPY. During the isolation period of two weeks, the beds are made up with sheets. A bed board and foot board are used with blocks between the footboard and the mattress. A small rubber ring is placed under the patient's head and a larger one under his buttocks. A trapeze, consisting of a broomstick-like length of wood and a clothesline, is attached to the foot of each bed. Each patient with muscle weakness or paralysis is placed in an oxygen tent for at least forty-eight hours. Muscle stretching is instituted at three different intervals after each daytime administration of curare—forty-five minutes, one and a half hours, and two and a quarter to two and a half hours. Those patients who are critically ill are

stretched after *every* administration of curare. Each joint in the body is put through its complete range of motion or a range as nearly complete as possible at the time. This stretching procedure requires intelligence as there must *never* be residual pain when the stretching is over. Great care is taken not to tear muscle fibers or other tissues, yet pain is *not* the criterion of the extent of the stretching. Stretching is best accomplished by carrying the part to the point of pain and then, with gentle pumping movements, increasing the range of motion slightly; rest and repeat. With each repetition, a greater range of motion is obtained. Care and patience are imperative in these manipulations. A great deal depends upon the ability of the physical therapist to converse with the patients during the stretching procedures and distract their attention as much as possible. When handled intelligently, this is not a cruel or heartless procedure. The patients are taught to stretch themselves, using such props as rolling pins, sandbags, and strips of muslin to help them. Patients start exercises while in isolation. They do sit-ups with the help of the trapeze. They walk or creep when able to do so alone and are helped to their feet by the physical therapists if they are unable to stand alone. Every attempt is made to prevent the patient from losing his kinesthetic sense of the upright position. Each patient is taught such specific flexibility exercises as he needs.

The idea of flexibility and coordination exercises in the treatment of acute anterior poliomyelitis should be explained, since these terms are used frequently. The fundamental gymnastics which were originated in Denmark have been adapted to exercise therapy. These are individualized exercises, and in the hands of an intelligent physical therapist they can be modified to meet every possible need.

Coordination is best exemplified by the highly trained athlete in action. Every motion has been thoroughly and thoughtfully learned by repetition so that the entire routine becomes automatic action. In our patients the feet are trained to one thing while the arms do something else, or each arm is trained to a different motion at the same time.

Many simple stunts are used therapeutically. Flexion contractures of the fingers and wrist are corrected by the simple progression of head stands with hands in supination or pronation to walking on hands. Shortened pectorals and shoulder girdle muscles are lengthened by standing on the stall bars, facing the gymnasium, and ex-

tending the forearms, allowing the body weight to fall forward while maintaining abdominal traction and pelvic tilt. Triceps surae, hamstrings, and back muscles are stretched by sitting on a mat facing the stall bars with both feet on lower bars and grasping a bar with the hands, then extending the knees and pulling the chest down to the knees. To stretch the gastrocnemii and solei, a wooden frame in the shape of an H is used. Each of the three bars which constitute the H is of different thickness. One is one inch thick, another two inches and the third is three inches. This board is placed up against a wall and the patient places his toes on the one-inch bar with his heels on the floor. Keeping his body erect, he places his hands on the wall and flexes his elbows allowing his body to tilt forward but keeping his heels on the ground. Progression is obtained by advancing to the two-inch board and then to the three-inch board.

After the isolation period, the muscle stretching is continued forty-five minutes after the administration of curare. By this time the patients have learned to stretch themselves and each other, and do so for the next two stretchings. This, of course, is done under the supervision of a physical therapist. Exercises can be started three hours after the administration of curare. Fundamental exercises with emphasis on flexibility and coordination are used. The aim is to obtain physiological motion of a part rather than action of individual muscles. Individual muscle training plays no part in this rehabilitation program. Muscle substitution is encouraged whenever necessary. The patients go to the gymnasium, where they use various apparatus such as stall bars, parallel bars, mariner's wheel, stationary bicycle, tumbling mats, rowing machines, etc.

Every effort has been made to develop a program of functional exercises, individualized to appeal to the patient's interests. This program consists of such activities as fishing, boxing, hiking, riding bicycles or tricycles, roller skating, rowing, paddling, playing baseball, volley ball, soccer, swimming, marbles, jacks, etc. The program is a stimulating one, and the patients see to it that the physical therapists are alert and active. Taking a long walk is not particularly interesting to a group of youngsters, but when they are going to the store with the best "hot dogs," it becomes an adventure. The patients get the ideas and the physical therapists adapt their regimens to those ideas whenever it is feasible.

Hydrotherapy is used extensively. Those patients with weak musculature use the Hubbard tank or the shallow outdoor pool daily. A table is submerged in the Hubbard tank for extremity exercises and removed so that the patient can better exercise his abdominals, back muscles, hip flexors, etc. A large salt water swimming pool has proved to be of great value for walking exercises and swimming.

Electrotherapy in the form of electrical stimulation is used whenever indicated. The Morton-Smart coil has proved to be particularly advantageous.

Occupational therapy is planned to develop a functional end result. A great variety of modalities is used, such as ceramics, weaving, painting, cutting, tile work, leather work, crepe paper work, etc.

PSYCHOLOGICAL PROGRAM. The teamwork of all who work with patients with acute anterior poliomyelitis is of paramount importance. There must be complete cooperation between the doctors, nurses, physical therapists, occupational therapists, and other members of this team. Only then is it possible to establish the ideal relationship between the patients and the workers. These workers get together socially to celebrate birthdays, etc. They play together at baseball, tennis, etc., in their leisure time. Informal meetings are held routinely, at which time problems are discussed and solved. This spirit has proved to be contagious and is carried over to the patients, who are included in many of the activities. Patients of previous years come back to visit those in the hospital, and lively discussions ensue. All of this may sound very far removed from the actual treatment of acute anterior poliomyelitis, but it forms the basis for the essential psychological approach to the treatment. In addition, the patients wear their own clothing, which is brought to them from home as soon as their isolation period is over. They have their own toys or hobbies brought to them too. The doctors, nurses, and therapists make it a point to spend some leisure time in recreation with the patients. This may consist of reading, listening to certain radio programs, movies, playing games, talking, or even roughhouse. The purpose of this is obvious. There are two rules which are adhered to rigidly. These are

1. *Never* lie to a patient
2. *Never* bribe a patient

Discussion

There comes a time in the treatment of any disease which does not have a *specific* to pause and take stock of what is being done—whether or not physiological principles are being used or abused, whether the advances in scientific knowledge are being thoroughly utilized. In the treatment of acute anterior poliomyelitis, it seems that a great deal had been accepted without thorough consideration of the underlying pathophysiology. Kinesiologists and orthopedic surgeons have known and recognized that a short muscle is a weak muscle. Innumerable orthopedic procedures have been designed that utilize this principle. In spite of this, in acute anterior poliomyelitis, joints have been immobilized in the so-called neutral position without regard to the fact that this must result in loss of muscle length, a piling up of exudative material with its resulting scarring, fibrosis, and loss of the intrinsic elastic fibers in the muscles. Muscle spasticity or spasm, long continued, results in loss of muscle length, e.g. strength. Therefore, it is important to get rid of this symptom or to control it as early as possible. Using the criteria established by Schwartz and Bouman, we have found that muscle spasm may be present as long as fifty-eight years after the onset of the disease.

The pathology of acute anterior poliomyelitis in the spinal cord has been described by numerous authors. It is to be remembered, however, that the vast majority of these studies have been done on autopsy specimens from patients who have died in the acute phase of the disease, or on laboratory animals which have been inoculated with the virus intracranially. Schwartz and Bouman, and Knapp have presented fascinating hypotheses on the role of the internuncial system. This has to be given serious consideration in any discussion of the central nervous system pathology of acute anterior poliomyelitis.

The work of Eben Carey and his coworkers on the pathology found in the end organs is another and an important aspect of the effect of the polio virus. From our observations of the use of curare and intensive physical therapy in the acute stage of acute anterior poliomyelitis, it seems likely that the end organ pathology is responsible for some of the clinical findings in acute anterior poliomyelitis for the following reasons:

1. The resting action currents, which are pathological, are either obliterated or materially diminished by using a sedative and not paralyzing dose of curare.

2. The pathological stretch reflex is decreased or eliminated after curare and stretching.

3. The disordered reciprocal innervation, the upset of Sherrington's Law, is frequently returned to normal. The agonist-antagonist action currents resume their normal relationship after curare and intensive physical therapy.

In addition to the effects described above, it has been noted that resting action currents can be diminished or obliterated by stretching alone. This effect lasts up to thirty minutes. When both curare and stretching are used, the effect lasts as long as six hours.

The clinical effects of the use of curare and intensive physical therapy may be catalogued briefly as follows:

1. Pain. This symptom is controlled. It has not been necessary to use either an anodyne or a sedative since this method of therapy has been developed.

2. Bowels. There has been little difficulty in the regulation of these patients' bowel movements.

3. Swallowing. Those patients with dysphagia, with few exceptions, have been able to swallow easily after curare.

4. Breathing. Patients who have had difficulty in breathing that was due to spasm of the intercostal muscles or diaphragm or both have been able to breathe better following intocostrin. It is felt that the use of curare in those patients who must be in a respirator is a great aid in preventing frozen chests. Far from being contraindicated in respirator cases, it is a valuable adjuvant. The great value of the Respiraid Bed has been demonstrated by Jessie Wright. It is likely that curare would be of assistance in the use of this apparatus too. We shall find out at the first opportunity.

5. There has been an absence of the cold extremities usually found in these patients. This is thought to be due to the histamine-like action of curare.

6. Curare is a material aid in muscle examinations. Muscle weaknesses will be found when patients are curarized that would not be detected on routine examinations.

7. Pulmonary edema of neurogenic origin has yielded rapidly, in some cases, after the administration of curare.

8. Fear and apprehension with attendant sleeplessness are rarely encountered in patients treated by this method.

FOLLOW-UP TREATMENT. It is imperative that patients be returned for outpatient physical therapy at regular, frequent intervals following their discharge from the hospital. When their period of outpatient physical therapy is concluded, they must continue to do their exercises at home and be checked thoroughly over a period of years.

Conclusions

A method of treating acute anterior poliomyelitis has been presented which takes cognizance of basic physiology and many of the newer ideas and concepts in the pathology and the neurophysiology of acute anterior poliomyelitis. The utilization of this method of treatment rehabilitates patients more completely and more rapidly. It is hoped that late sequelae of the disease will be prevented or minimized.

It is to be remembered that cases of polio are not cured! It is up to the team treating the patients to guide their convalescence along the best possible lines and to the most satisfactory functional result possible.

REHABILITATION OF THE PATIENT WITH POLIOMYELITIS

By MORTON A. SEIDENFELD, Ph.D.

Lord Chesterfield once said, "I find, by experience, that the mind and the body are more than married, for they are most intimately united; and when one suffers, the other sympathizes." Individuals before and after him have recognized the mind-body relationship and have spoken of it. Yet, strangely enough, these occasional voices have made so little impact on medical thought and action thus far that relatively little has been done to provide a type of medical care that deals with the patient as a whole individual.

One may question whether the physical side of poliomyelitis is so overwhelmingly and immediately important to the patient that no other aspect of this disease can be expected to share attention with it, at least until the acute and early chronic phases of the disease have been brought under control. It is obvious that the most important step is to seek ways and means of preventing the inroads of the virus of poliomyelitis or at least the early arrest of the disease process, making the patient symptom free and providing the means for correcting the damage wrought by the virus. While all these matters are going on, however, the patient's mental processes do not come to a dead stop. We can appreciate the fact that one's feelings of responsibility to his family, insecurity regarding socioeconomic outcome, or the continuation of an educational plan, to name but a few typical worries, cannot be tossed off lightly because a return to health and freedom from physical blemish is being sought. Unfortunately, but no less truly, the patient is likely to *think* in terms of the inability of medicine to cope with his physical problem rather than of the outcome of successfully treated cases. Yet, in spite of this conflicting psychological factor, very little attention on the part of the medical or medical ancillary workers has been devoted to this problem—if the scientific literature is any index of professional interest.

Examination of the medical literature relating to poliomyelitis

reveals a general failure to heed the psychic elements. One needs merely to point out that in such a comprehensive index as *A Bibliography of Infantile Paralysis: 1789-1944* (2), out of 8,320 references included in the index, there is *none* referring either to social or to vocational effects of poliomyelitis; only eleven (0.1 per cent) on the mental effects, and nineteen (0.2 per cent) on any aspect of rehabilitation of the patient with poliomyelitis. Since the publication of the bibliography discussed above, the National Foundation for Infantile Paralysis has issued monthly, beginning in October of 1946, an addendum entitled "Poliomyelitis Current Literature." Up to March of 1948 some 397 additional articles had been reviewed, of which fifteen (4 per cent) were on topics related to the psychosocial-vocational aspects of poliomyelitis. While one could hardly argue that this proves beyond a doubt the lack of attention to the "mind" elements in contrast to "body" elements, at least it suggests that the emphasis has been very heavily weighted thus far in favor of physical aspect. To all intents and purposes, the stresses on the psyche have been generally ignored.

While steps toward prevention and, in the absence of prevention, toward the alleviation of pain, reduction of disability, and elimination of deformity are vitally essential, *they do not represent the sum total of what is needed.* Unfortunately, when the patient becomes ill with poliomyelitis or, for that matter, any other disease, he becomes ill as a totality—*not* as a collection of individual anterior horn cells, muscles with ailing motor nerves, or a finite central nervous system invaded by a parasitic virus. As Braceland (1) has said so well, "In the materialism of the last century, the individual was forgotten and medicine saw only the disease with its background of gross or microscopic pathologic change. Should this attitude be carried over into rehabilitation programs, we will not succeed, for it is the individual who is sick or injured, and how his personality is affected for better or worse will govern his chances of rehabilitation."

This point of view is at some variance with that expressed by Kessler (3) who in speaking of poliomyelitis states, ". . . the physical defect produces an impaired capacity for normal living and working." To Kessler, poliomyelitis is a "pure type of crippling disease" in which only physical changes occur, in contrast to such a crippling illness as cerebral palsy, in which organic mental changes occur much more frequently as a direct result of the trauma-producing factor.

Kessler's expressed opinion is, unfortunately, that held by a good many physicians, especially orthopedists, who fail to take cognizance of nonorganic mental changes resulting from the stress-producing effects of poliomyelitis upon the patient. These are fully as damaging as any effect that may be produced directly upon the central nervous system by a virus or accidental factor.

If we are to secure prompt attention to the total needs of the patient with poliomyelitis, we must focus our attention on psychosocial problems with the same alacrity as we do on any other aspect of his illness except, perhaps, the maintenance of vital life processes or the alleviation of pain. To accomplish this successfully, it is necessary to supply the patient with adequate medical social service administered by competently trained professional personnel. This is, of course, in addition to the physician and other medical ancillary professional workers who are properly oriented in their individual and collective roles in assisting the patient toward psychological acceptance and realistic solution of his problems.

Thus far emphasis has been placed upon the recognition of the basic deficiencies that appear to have influenced the application of the rehabilitation concept to the medical care of poliomyelitis patients. Deficiencies in this area have led the National Foundation for Infantile Paralysis to stimulate provision of medical care for poliomyelitics that encompasses their needs as *whole personalities*. The National Foundation has approached this problem on several fronts. Since the Foundation does not itself dispense treatment nor operate medical care institutions, any efforts which have been and are now being made must take the form of (a) educational procedures directed toward orienting medical and medical ancillary personnel regarding the process of rehabilitation; (b) establishment of training centers for medical and medical ancillary personnel; (c) provision of professional training for physical therapists and other professional workers whose services are essential to the care of the poliomyelitic; (d) establishment of experimental centers for objective study of all types of rehabilitation processes, including staff coordination; (e) establishment of training and study programs in fields where nonmedical services appear to be inadequate or unsatisfactory—for example, educators dealing with handicapped children have been brought together to orient their thinking regarding the teacher's role in the care of physically disabled children; and (f) carrying

forward a program designed to educate the patient and his family as to their contribution to rehabilitation.

In order that the part of the National Foundation for Infantile Paralysis in this program may be better understood, let us examine each facet of the programs individually.

The first program indicated above is directed toward the orientation of medical and medical ancillary personnel with regard to the "whole patient" or rehabilitational approach. This program is being advanced mainly through international, national, state, and local-level meetings sponsored by professional organizations or institutions, assisted by funds from the National Foundation for Infantile Paralysis. Three examples of such meetings that are of outstanding importance are, first, the Rocky Mountain Conference on Infantile Paralysis (4), held in December of 1946, sponsored jointly by the University of Colorado School of Medicine and the National Foundation. At this meeting discussions, clinical presentations, and conferences served as media for presenting the views of the several disciplines concerned in the care of the poliomyelitic. The second example is the three-day conference held at the Georgia Warm Springs Foundation in September, 1947, to review the progress made in the diagnosis and treatment of poliomyelitis. Papers were presented at this conference which dealt with modern methods of poliomyelitis diagnosis and after-care as developed by authorities in the fields of epidemiology, neurology, orthopedic surgery, physical medicine, occupational therapy, physical therapy, medical social work, and psychology. The third example is the First International Poliomyelitis Conference held July 12-17, 1948, in New York City. At this meeting medical and medical ancillary personnel from all over the world gathered to discuss every phase of research on and care and treatment of poliomyelitis. Here again the emphasis was on "whole care" concepts, with the team relationships of the pediatrician, the orthopedic surgeon, the nurse, the medical social worker, and the physical therapist emphasized and with recognition of the part which psychiatrists, psychologists, etc., may play in solving many of the problems relative to the return of the individual to an adequate way of life. It is interesting to note, in passing, that perhaps for the first time on a large scale these relationships are stressed from the *onset* of the illness to the completion of the individual medical care period.

In addition to large-scale local, national, and international meetings, many conferences with national professional groups of various medical specialists—nurses, social workers, physical therapists, public health workers, and so forth—have been held at which competent professional personnel have discussed ways and means of improving every aspect of medical care.

The second area in which the National Foundation is stimulating support for the care of the patient as a totality is the establishment of training centers where physicians, nursing supervisors, and others may learn the most modern techniques in early diagnosis and treatment and general rehabilitation concepts as applied to the child or adult with poliomyelitis. The first of these centers was established at Knickerbocker Hospital in New York. Others are now operating at The Children's Hospital, Boston; City Hospital, Cleveland; Stanford University, San Francisco; and the University of Colorado Medical Center, Denver. At these institutions well-selected staffs of orthopedists, physical therapists, nurses, medical social workers, and consultants in clinical psychology offer courses at regular intervals throughout the year. Here the experienced physician, nurse, physical therapist, and occupational therapist can become acquainted with the type of coordinated program that leads to most effective rehabilitation. An additional center has been planned to open shortly at The Orthopaedic Hospital in Los Angeles.

The important aspect about these centers is that they not only supply modern didactic presentation of instructional material but offer those who attend the opportunity to observe the application of expanded treatment programs. In the centers the patient's orthopedic needs are met and careful staff planning is assured through *regular staff conferences* in which all the facets of the patient's life situation are dealt with. These considerations influence the medical, social, psychological, and vocational decisions.

A third important contribution to the physical restoration of the patient is the role which the National Foundation has played in stimulating the growth of the professional training of physical therapists. The training of over 1,100 physical therapists has been financed through scholarships by the National Foundation. This number represents an increase of about 25 per cent in this badly needed professional group which contributes so greatly to the alleviation of pain, the correction of deformity, and the preparation of

the poliomyelitic patient to lead an adequate and satisfying life. In 1942 a small grant of $5,000 was awarded to the American Physiotherapy Association for the training of physical therapists. In 1945 the National Foundation enlarged its physical therapist training by appropriating an additional $1,000,000.

Had this contribution not been made, it is doubtful indeed if as many boys, girls, men, and women would have emerged from their postpolio convalescence equipped to carry on their daily activities as effectively as they now are doing. The increased attention that the physical therapist is giving to prophylactic mental hygiene and other aspects of the patient's psychological adjustment, her role in helping him back to health, goes beyond the physical phase alone. She is indeed a valuable member of the rehabilitation team.

This is but one example of the broad educational program for medical ancillary groups, designed to improve and make available well-trained workers in sufficient numbers to insure adequate patient care. A review of the *Annual Reports* of the National Foundation for Infantile Paralysis will provide additional data for those interested in the training program.

A fourth area in which the concept of rehabilitation of the whole patient is being extended is experimental study carried on in the established training-treatment center. This investigation is concerned with (a) objective study of the patient's expressed problems; (b) the method by which these problems are dealt with by the medical and medical ancillary staff; and (c) the collection, interpretation, and coordination of these findings into the treatment program.

The first place where such a program was established is The Orthopaedic Hospital of Los Angeles. Early in 1948 a program was outlined in which the problems of the patient would be recorded as a regular clinical procedure in much the same manner as temperature, pulse, and respiration. In addition, the answers or solutions to patient problems by staff members are likewise recorded. This procedure has begun to yield a basis on which improved staff coordination, better service to the patient, and more effective use of time by hospital personnel may be secured.

Even more important is the fact that the procedures normally associated with occupational therapy, diversional therapy, and academic and nonacademic educational programs used in hospital

rehabilitation have been used in the past on an *a priori* basis. It is hoped that objective study may make it possible to accord these therapies at least the same care and consideration in their administration to the patient that is applied to drugs and physical therapeutic procedures. The fact that this program is established in a training center hospital will permit the promulgation of the findings not alone through the printed word but directly to medical and medical ancillary personnel within the hospital environment. There they may learn that "it can be done" without destroying any of the desirable characteristics of organized hospital practice.

Fifth among the endeavors that the National Foundation is making to establish the rehabilitation point of view is the effort to obtain recognition for existing deficiencies in the program for the educational phase of the hospitalized child's care. In the past it has been a frequent occurrence for a child to be severely retarded in schooling. To put it bluntly, these patients have been deprived of the opportunity to gain those experiences that will prepare them for leading effective, ego-satisfying, and happy lives.

On the 26th of February, 1948, the National Foundation sponsored the First Conference on Education of Hospitalized Children. More than 200 teachers in hospital schools, hospital and school administrators, physicians, therapists, and social workers from thirty states came to seek a plan by which they could improve and extend their services to these sick children. Some basic conclusions were reached that may be expected to have profound effects upon the rehabilitation of not only children with poliomyelitis but also all other children who are physically disabled or forced to endure prolonged convalescence. A few of these conclusions are as follows:

1. Parents must be convinced of the importance of group activities and psychological adjustments as part of education, rather than judging the child's progress only by academic achievement.

2. The handicapped child whose achievements in life usually depend more on mental than physical skills needs more than "textbook learning." This, it was felt, can be supplied better by an all-day program of planned instruction than by an hour or so daily of tutorial education.

3. Stress should be laid on dynamic recreation in hospitals, as opposed to recreation limited to passive entertainment, which is prevalent today.

4. Special training must be provided for teachers in hospital schools, based on short orientation courses.

These few excerpts from the conference report reveal the importance of better training of hospital administrators and staffs to understand the needs of children and to provide educational support along with medical care. The need for better preparation of teachers to carry on this work as members of the medical care team is of paramount importance.

The sixth contribution of the National Foundation to the rehabilitation of the poliomyelitic is the preparation and distribution of educational literature both to the patient and to his parents. This literature is designed to answer important questions, avoid misunderstanding or false concepts, and prepare the reader for active cooperation with the medical team.

A manual for parents is already available. *When Your Child Has Infantile Paralysis* is designed to acquaint the parent with hospital procedure and the nature of the disease and to deal with many questions regarding the patient that have been found to create psychological disturbances unless promptly answered. It seems to "tide parents over" the initial impact of the illness of the child until the physician, the medical social worker, or some other suitably trained individual can discuss the matter with them in more detail and with greater specificity.

Another manual, *When You Have Polio,* has been published. This manual is designed for the adult and teen-age patient and similarly seeks to answer the questions that often annoy and threaten the patient's peace of mind. Here, again, this is an orientation device to help the patient recognize that his outlook depends upon himself as well as his physician, that his cooperation is essential, and that he can secure the aid of many specialists in finding the positive qualities that will help him lead the sort of life that produces satisfactions instead of "gripes," success instead of failure.

A manual designed to do a similar task for the young child and another for orienting the physician to rehabilitational concepts as applied to the polio patient have been planned. Numerous articles directed to medical ancillary workers have also been published. These, too, deal with various phases of rehabilitation.

Although the National Foundation plays a vital role in the education and training of medical personnel suitable to carry on the most effective treatment of the patient, it at no time dictates to physicians or ancillary personnel what they are to do. All that has been accom-

plished thus far has been done on the basis of presenting facts and observations, supported by evidence that they have served the best interest of the patient.

Thus on many fronts the National Foundation seeks to make philosophy that will serve to extend the process of rehabilitation as available on a nationwide basis the knowledge, experience, and an integral part of medical care for all patients with poliomyelitis. It should be remembered, however, that the National Foundation also is endeavoring to support research and education throughout this country with the goal of eliminating this disease from the lives of American children and adults.

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* These references are not mentioned in the text, but it is believed they will prove helpful to the reader who desires further information on the rehabilitation of the poliomyelitic.

REHABILITATION THERAPY IN POLIOMYELITIS

By DAVID S. GRICE, M.D.

The acute phase of poliomyelitis is indeed of very short duration, but there are few diseases which may cause such lasting and severe crippling effects and present such a challenge to the physician in restoring the patient to normal activity. Recently there have been some reports to the effect that too much emphasis has been placed upon the study of this disease. Without entering into a discussion of its relative importance, it should be appreciated that infantile paralysis is still one of the major causes of crippling in childhood. A survey of New York City in 1944 revealed that poliomyelitis was the cause in 22 per cent of cases of physically handicapped children. There is some uncertainty about the actual incidence of the disease, since it may exist in subclinical form and thus escape recognition. In some years the incidence may be relatively low, but it may occur in epidemic proportions as it did in 1946, when there were 25,191 cases reported in the United States.

With the exception of the acute phase of the disease during which the patient's life may be in jeopardy, the entire treatment is concerned with the restoration of the patient to as near normal existence as possible. Once the febrile episode has subsided during the acute phase, the patient usually will have no further extent of his paralysis and is, in truth, most paralyzed at this time. However, he might not necessarily have his greatest incapacitation from the disease until later. It is possible that, if the patient does not receive good therapy during the convalescent period, secondary deformities may develop which increase the disabling effects of the paralysis. However, if adequate therapy is instituted during this phase of the disease, progressive improvement of muscle function can be anticipated and impairment of function due to deformity may be held to a minimum.

Assuming that no specific therapy were instituted, we might analyze the crippling effects of the disease upon the patient somewhat as follows. The primary factor in producing disability is the

flaccid paralysis resulting from destruction of anterior horn cells in the spinal cord. Much has been written recently of the importance of muscle spasm and sensitivity in relation to the disability caused by poliomyelitis. During the acute phase and early convalescent period muscle spasm or sensitivity may play an important role in the production of deformity, particularly in the presence of paralysis. Because of the sensitivity and muscle spasm, the part is maintained in deformity and the patient is unwilling or unable to move the part from this position. This eventually will result in myostatic contracture of muscles, secondary shortening of the tendons, and contractures of the joint capsules. In the absence of paralysis little permanent disability will result from the muscle spasm or sensitivity. Conversely, however, a completely paralyzed "flail" extremity relieved of sensitivity and not deformed is nonetheless seriously crippled.

Paralysis not only causes disability due to the loss of function but by virtue of its asymmetrical distribution plays a significant part in the production of deformity. It is well appreciated in orthopedics that any position which is maintained over a long period of time will result in deformity. Initially the disability from the paralysis may be minimal, but as deformity increases there will be progressive loss of function.

Inasmuch as the majority of the patients are children in the growth period, there is an additional factor in the production of deformity contributed by growth itself. In accordance with Wolff's Law of functional adaptation, the form and architecture of bone corresponds to the strain and stress to which bone is subjected in the performance of its function. There are not only changes in the bones adaptive to the position in which they are maintained, but the deformities are both increased in severity and fixed through subsequent growth of the bone. This factor alone prolongs the risk of deformity over many years and is particularly important during the period of active skeletal growth. The longitudinal growth of an involved extremity may be inhibited, and the resultant shortening may cause considerable disability.

Although the forces producing deformity are active in the relatively quiescent stage of convalescence, they are increased when the patient is restored to activity. This is particularly true if improper use of a part is permitted in an abnormal position. In the lower

extremities the stresses of functional activity may be deforming in the presence of instability resulting from paralysis.

There is a small percentage of patients who will show late changes associated with marked vasoconstriction.

With this general outline of the crippling effects of polio in mind, we can discuss the manner in which these various disabling factors are controlled during the stages of the disease. Inasmuch as this discussion is concerned with the rehabilitation of the polio patient, the care of the patient during the acute phase and the management of respiratory and bulbar involvement will not be presented. Consideration will be given only to the treatment of the paralytic patient beginning with the convalescent period.

The convalescent period is generally considered to begin at that point when the fever subsides and no further progression of the paralysis is to be expected. This phase of the disease may be considered under the headings of the sensitive phase, which may last from a few days to as long as several months, and the asensitive phase which lasts twelve to fifteen months. During the sensitive period the effects of the general inflammatory reaction in the nervous system are still manifested. In addition to the essential muscle weakness or paralysis, the patient exhibits a certain amount of nervousness and irritability, as well as tenderness, hyperesthesia, or spasm of the peripheral musculature. General supportive measures of rest, sedation, and reassurance are of primary importance in the management of the apprehensive patient. Gentle handling ought to be carefully observed in the examination of the patient and during nursing care to avoid increasing discomfort. Moist hot packs applied intermittently will help to relieve the sensitivity of the muscles. Gentle active and passive motions can be instituted at a very early date in order to restore flexibility to the involved extremity or trunk. Proper positioning of the patient in bed with the support of foot boards, pillow-rolls and other types of support as indicated will prevent the patient from assuming positions of deformity.

Gradually these acute symptoms subside and the patient enters the asensitive phase of the convalescent period, in which muscle weakness is the predominant feature. During this period return of muscle power can be anticipated. The possibility of improvement in the strength of muscles is dependent on the degree of recovery of the anterior horn cells which have been damaged but not destroyed

by the virus. Cells which have been destroyed by the virus of the disease can never be reproduced. If all the neurons which innervate a particular muscle have been destroyed, that muscle will be completely and permanently paralyzed. In most instances there is not complete destruction of all the cells connected with a given muscle; the degree of recovery is dependent upon the relative number of motor cells which survive. If all the cells remain vital after the destructive invasion of the virus, there is the possibility of return of normal power in the muscles. While the ultimate recovery is primarily dependent upon the restitution of the affected neurons, the functional capacities are greatly affected by the treatment instituted. Much can be done during the convalescent period to aid the patient's eventual recovery by maintaining the muscles, bones, and joints in as good physiological condition as possible and in preventing deformity from occurring.

As soon as possible after the febrile phase subsides it is important to obtain an evaluation of the muscle power. This initial examination may be difficult if the patient is sensitive, and it may not be accurate. However, fairly good approximation of the muscle strength can be obtained if this is worked out piecemeal over a period of time without fatiguing the patient. It is important to have this evaluation of the patient's over-all involvement both as regards the ultimate prognosis and in outlining the therapy which is to be instituted. It is difficult to make a prognosis about the eventual recovery of the patient on the initial muscle examination, but it serves as a baseline for subsequent evaluations upon which a fairly accurate prognosis may be made. Muscles that show early and rapidly developing return of strength will probably make a full recovery. Muscles which are completely paralyzed at the end of three months will usually be permanently paralyzed. In general the prognosis is poor when there is extensive paralysis involving all muscles below a certain level; that is, if there is a complete flaccid paralysis of both lower extremities initially, there is little hope for much return of functional motor power.

It is during the convalescent period of treatment that physical therapy is most effective in restoring weakened muscles to their utmost effectiveness by guided active exercises adapted to the strength of the involved musculature. Gentle massage may be instituted to increase vascular tone. Heat is used to afford relaxation of the

muscles, and the use of hydrotherapy in warm tubs or pools may be a valuable adjunct in treatment. The chief value of this treatment is that the water affords buoyancy, while the heat brings about relaxation and relief in the discomfort of the sensitive muscles. The tub or pool enables patients to accomplish more effective motion in weakened muscles than would be possible on the ordinary exercise table. This hydrotherapy must be carefully supervised, and all the motions which are carried out must be controlled so that the patient does not substitute stronger muscles for the weakened ones. General rest gradually becomes less important, although muscle fatigue must be prevented. This is important, since a weak muscle rapidly becomes fatigued and is dropped from the pattern of activity. If a patient is allowed to continue his activity, he will substitute the stronger muscles and develop an abnormal functional pattern to the detriment of the weakened muscles. It is during this period that the effective strong unopposed musculature becomes active in the production of deformity. Passive forceful stretching of the stronger muscles may be necessary to prevent them from becoming contracted. It may be advisable to use bivalved casts or other types of support in order to keep the parts out of the position of deformity.

The period in which increasing activity is permitted is one of the most important phases in the management of the patient. It varies greatly as to the time after onset and to the ease and rapidity with which it can be accomplished. The principal determining factors are the extent and distribution of the paralysis of the patient, but there is also a great variability in individuals with the same amount of paralysis due to their innate coordination or muscle control. In general, the patient is allowed to perform that activity which he can do in normal or nearly normal manner to the point short of fatigue. The muscle imbalance which has tended to produce deformity while the patient is at rest is intensified when he becomes active. A patient with weak dorsiflexors of the foot but a normal gastrocnemius may be controlled with casts in bed, since the gastrocnemius is not actively functioning. When the patient begins to walk, however, the gastrocnemius will actively function and be inadequately opposed by the reciprocal muscles of dorsiflexion. The dorsiflexors may work effectively for a brief period in lifting the foot against gravity and in the absence of contracture. As these muscles fatigue, they are unable to dorsiflex the foot, which therefore remains in equinus. The pa-

tient will then develop an equinus gait which will lead to subsequent deformity. If a patient is allowed to develop such an abnormal pattern of activity early in the convalescent period before full recovery of motor power has occurred, it may be exceedingly difficult to correct this at a later date even though the involved muscles regain adequate motor power.

It is during this phase of the treatment that the use of braces and crutches proves a valuable adjunct in the management of the patient. It is apparent that in the severely paralyzed individual the use of supportive apparatus may be the sole means of restoring activity. The use of apparatus should not be limited to this narrow field and actually has a wider use in preventing deformity and in allowing an increase in the activity of partially paralyzed muscles. In general, active splinting assisting in the functional pattern is much preferred to what might be called static splinting, but both have their specific applications. Most of the objections to braces have arisen from their injudicious use. Care must be taken to afford maximum protection and functional use and to minimize the restrictions of function from the apparatus itself. Compromises may have to be made to meet these requirements. The period at which supportive apparatus is to be instituted is important, since it may be applied either too soon or too late. If apparatus is applied too early in the convalescent period in order to accelerate the return to activity, it may jeopardize the eventual recovery of function. Conversely, the use of apparatus may be deferred too long, until deformity has been allowed to occur.

An example of each of these principles may help to clarify them. If a patient with a weak hip flexor and a weak quadriceps is allowed to walk with a straight long-caliper brace before full recovery of motor power has occurred, he may be quite active. However, the use of the brace may prevent the normal return of power of the weak hip flexor, since it would not be able to lift the total weight of leg and brace and an abnormal pattern of activity will be established. Since the quadriceps will not function actively to produce motion at the knee, it also will not be integrated into the pattern of activity. Thus the use of the brace may impede the eventual return of power which would have occurred without the brace.

If a patient has obtained maximal recovery of muscle power, however, but still has a weak quadriceps, it may be desirable to use a brace to stabilize the knee in walking. It may be found that a

child with a paralyzed quadriceps can walk for brief periods without difficulty. However, a child is difficult to restrain, and as he increases his activity and becomes fatigued he will hyperextend the knee. If this is not controlled a severe genu recurvatum may result which will later require the permanent use of a brace or an operation to correct the deformity. It would be better to use a brace temporarily in this instance to prevent deformity during the growth period and thus enable the patient to walk unaided later in life when he will control his activity and be much less likely to develop deformity.

In general it is advisable to give a patient daily periods of activity without support whenever it appears that he may eventually be restored to greater activity, free of braces, by training or surgical rehabilitation. These periods of activity should be carefully supervised at home by the parents and in the hospital by the physiotherapist.

Although intensive therapy is most indicated during the convalescent period during which muscle recovery can be anticipated, much benefit can be derived from good care during the residual stage of the disease. While muscle recovery is taking place because of spontaneous regeneration of the anterior horn cells, treatment is primarily directed towards encouraging function in individual muscles and integrating them into the pattern of activity. Once maximal recovery has taken place, however, efforts are made to enable the patient to attain maximal use from the remaining functional musculature. Resistive exercises adapted to the strength of the involved muscles may bring about hypertrophy and increased functional use. In many instances it is necessary to continue therapeutic exercises to maintain a weakened muscle at its present level of activity so that it does not regress. Often we are dealing with a group of weakened muscles which are working against strong antagonists with adequate function being maintained. However, if deformity should develop as a result of the muscle imbalance, the weaker muscles would work less effectively and thus increase the deforming tendency. It is, therefore, necessary to continue exercises and support for the weaker group of muscles and passive stretching for the stronger muscles to prevent them from producing deformity. The use of supportive apparatus at night or while the patient is at rest can be very effective. Continued use of muscles enables the patient to develop a greater degree of coordination and dexterity if activities are properly super-

vised. At times it may be necessary to teach the patient to suppress overactive muscles which are tending to produce deformity. When a major activating group of muscles has been lost, the patient can often be taught to substitute other muscles to accomplish the same function.

Although we speak of the residual stage of the disease as beginning at that time when the patient can expect no further recovery of muscle function, it is lifelong in duration. There are a great many deformities that are very slow to develop and yet may be the most crippling. This is particularly true of the child during the growth period. Many of the late deformities are produced by relatively minor muscle imbalances, but, because of their long duration during the growth period, they may produce serious deformities because of the adaptive changes in the growing bone. In the adult patient with extensive paralysis of the trunk muscles the back may be supported with simple supportive apparatus and little deformity or disability will result. In the young child the most distressing scoliosis may develop from moderate asymmetrical paralysis in spite of all the measures taken to prevent it. It is of great importance to have a complete routine examination of polio patients at regular intervals to anticipate the development of deformities, and in many instances they can be prevented. All of these measures are temporizing procedures until the definitive reconstructive surgery can be carried out. Although surgical correction offers the patient the greatest opportunity for rehabilitation, it also may have to be postponed for a long period of time. It is during this period of waiting that patience is of great importance. The use of braces, crutches, regular exercises supervised by the physiotherapist, and frequent examination by the physician help to maintain the patient's activity but prevent him from getting into difficulty. This requires an understanding of the problem and the cooperation of the doctor, the physiotherapist, the patient, and the parents.

Although therapy will be successful in restoring many patients to an active life, there will be some instances where deformity will occur in spite of it and the patient will not be restored to functional activity of the desired degree. There will also be some instances where therapy has been inadequate at some stage and deformity will have occurred. For these patients reconstructive surgery offers the greatest hope for rehabilitation. There are also some patients

who are able to maintain an adequate level of activity with the use of supports but with surgery might be enabled to discard the braces and maintain the same level of activity or a greater one. It is far beyond the scope of this article to discuss the multitude of operative procedures which can be carried out for the rehabilitation of polio patients. There are certain types of orthopedic procedures, however, which are particularly adapted to poliomyelitis, and a brief discussion of the general principles involved will be presented.

One of the simplest methods to overcome deformity is the use of the wedging cast. Often a deformity has occurred about a joint before the return of muscle power in the weakened muscles. Were it not for the deformities the muscles might have adequate strength to carry out normal function. In this instance the simple stretching out of the antagonists with the wedging casts corrects the deformity and enables the patient to resume normal activity. If the deformity is of long standing or is too severe, surgical procedures such as fasciotomy, or capsulotomy of the joints, may be necessary to overcome the deformity. In some instances there may be deformity of bone as well and osteotomy will also be necessary. In addition to the ordinary osteotomies which are used to correct deformities either in the anteroposterior or in the sagittal plane and those done to correct rotational deformity, certain special types of osteotomies are performed in order to give stability or limit a range of motion. An example of this latter type is the posterior bone block at the ankle which allows motion of the ankle joint but prevents the foot from dropping down into equinus.

The numerous types of tendon transplantations are particularly well adapted to the problem of poliomyelitis. The fundamental principle of this procedure is either to remove a deforming force or to augment the power of a weakened muscle with that of a stronger one. Wherever possible these two principles are combined. An example of the substitution of a strong muscle for a weakened one is the transference of the flexor sublimis of the fourth finger to replace the loss of the opponens muscle in the thumb. An example in which the two principles are combined is the transference of the anterior tibial from its insertion into the medial aspect of the foot to the dorsum of the foot when the peronei are weak and the foot tends to go into inversion.

Arthrodesis is often performed to correct deformity, to stabilize a joint, or in combination with some other procedure to increase function. Fusion of the midtarsal bones which have been shaped to pattern will not only correct deformity in the foot but will also restore lateral stability. If the deformity has arisen because of muscle imbalance, tendon transplantation should be done in order to prevent recurrence of the deformity.

Arthrodesis of the spine may be performed to maintain correction of scoliosis which has been corrected by the use of a wedging jacket.

When the muscles of the fingers are paralyzed but the wrist extensors and flexors are strong, the wrist may be fused and the wrist musculature transplanted to the tendons of the fingers to restore the function of the hand.

The inequality of leg lengths which results from poliomyelitis may be very disabling. The ideal procedure would be stimulation of growth in the short or involved leg, but this has not been successfully accomplished to date. Early mobilization and greater activity may minimize this tendency, and lumbar sympathectomy has been advocated to increase the blood flow to the epiphyses and thus stimulate the growth. Favorable results have been reported in some instances, but in other cases it has been unsuccessful. Greater study of this problem is being made, and the various factors contributing to the shortening of poliomyelitic extremities must be evaluated before growth stimulation of the shortened leg can be satisfactorily obtained.

At present, the most desirable procedure is the inhibition of growth in the longer extremity which is accomplished by epiphyseal arrest. The epiphyseal line in either the lower femur, the upper tibia, or both may be fused in order to obtain the desired shortening. It is a relatively simple procedure for an experienced orthopedic surgeon and carries little risk for the patient as compared with the operations for lengthening or shortening of a leg. The chief difficulty has been in predicting the anticipated inhibition of growth, but tables are now available which enable the surgeon to make quite accurate predictions of the shortening to be obtained.

Leg lengthening is ordinarily carried out in the lower leg in order to avoid the complications involving the knee joint, and the average gain in length is two inches or less. Occasional reports of three inches

of lengthening have been reported. The procedure requires prolonged immobilization in casts, and there is always the risk of osteomyelitis or the complications of delayed union or nonunion of the bone. Since the lengthening itself may produce an equinus deformity of the foot and some loss of muscle strength, the most suitable patients for this procedure are those with marked paralysis below the knee, as they will probably require stabilization of the foot anyway. Shortening of the longer leg is a less difficult procedure and carries less risk for the patient. However, the majority of patients are unwilling to have elective surgery on an extremity that is normal or nearly so, and patients should be selected with great care for this procedure. The femur is most frequently chosen as the site of shortening, but shortening can also be done upon the lower leg. These procedures do have some risk of sepsis and nonunion, although less than with lengthening operations, and there have been postoperative complications resulting from vascular disturbances.

There are certain late vascular changes which may be crippling. These result from vasoconstriction in the involved extremities. In a typical case the extremity is cold, perspires freely, and exhibits mottled purple discoloration of the skin. When these extremities are exposed to extremes of cold the resulting picture is chilblain in which there are localized areas of necrosis and sloughing of the skin and subcutaneous tissues. In selective instances the disability and discomfort may warrant paravertebral block or sympathectomy.

Although the primary concern of therapy is the physical rehabilitation of the patient, it is essential to consider him as a whole and in his relationship to the rest of society. No therapy can be considered as being successful if the patient is not readjusted psychologically and cannot attain some degree of sociological and economic independence. A patient can overcome his physical handicap only if he is not mentally crippled. Unfortunately, poliomyelitis is an epidemic disease, and it strikes terror in the hearts of families when it occurs. In spite of an intensive education program, there still exists a great deal of confusion in the minds of most lay people regarding this disease. It is distressing that in recent years they have been led to suspect that with proper treatment no paralysis will result from the disease. It is essential in the management of the child to explain the course of poliomyelitis to the parents so that they will have an understanding of what is being done. If the child is given reassurance and understand-

ing, his innate optimism will carry him over the psychological hazards of physical incapacitation. Undue solicitude and sympathy on the part of the attendants and the family may set the stage for serious psychological crippling. It is an educating and stimulating experience to see the enthusiasm and cheerfulness which are displayed by the children on a well-run convalescent ward. Confidence in all the attendants must be felt by the patients. Ample opportunities should be provided for entertainment. While the child is in the hospital and is associated with other handicapped children, he is much less aware of his difficulties than when he returns home and must compete with normal individuals. This adjustment to the home environment should be carefully planned and discussed completely with the family.

Since the initial hospitalization and later admissions for operative reconstruction may cause the child to lose time from school, special consideration should be given to the educational program. Visiting teachers can enable the child to continue his schooling while in the hospital and while convalescing at home. For the severely handicapped child, ample opportunities should be afforded to attend special schools or have instruction at home. The education program should include consideration of vocational guidance so that the patient can become economically independent.

The adult patient presents a more difficult problem in management, and it is advisable not to be too abrupt in telling the patient what his eventual disability will be. Because of the natural course of recovery in the disease, the patient will be encouraged to realize that he will not be as disabled as he originally thought and will gradually come to appreciate what his true disability will be. During the convalescent period an appraisal should be made of the patient's functional capacity. If it is apparent that the patient will be unable to return to his previous occupation, he should be advised of this possibility and his interest should be directed toward an occupation for which he is suited. It is often possible to initiate the training necessary for the pursuance of the new vocation during the convalescent period, which will prove to be helpful in raising the patient's morale.

The agencies for vocational rehabilitation should be encouraged to formulate a training program adapted to the patient's handicaps rather than to attempt to fit the patient into an established routine of training. It is unfortunate that such programs lack flexibility and versatility because of fears that the patient will not be employed after

completing the training. There is need for greater cooperation of industry in the placement of these patients. The value of an employee is often measured in terms of an insurance risk rather than his ability to perform a prescribed task. Personnel directors and medical examiners should be solicited to adopt a more enlightened attitude in regard to the individual handicapped by poliomyelitis as well as those disabled by military service.

REHABILITATING THE SPEECH SUFFERER

By JAMES S. GREENE, M.D.

A number of years ago an archeologist excavating the ruins of the Biblical town Beth Shemish came upon a small clay tablet. On it was engraved a prayer: "Oh God, cut through the backbone of my stammering . . . remove the spring of my impediment." The cry of that ancient and nameless speech sufferer has echoed and reechoed through the centuries, for every age has had its quota of speech cripples. The present era is no exception, and today there are in the United States alone over 12,000,000 such sufferers. They present a very serious rehabilitation problem, since speech is essential to almost all interpersonal relationships and interference with the speech function inevitably affects social and vocational adjustments.

Unfortunately, until recent years, very little has been done to help the speech cripple, but it has been heartening to note during the last decade the growth of speech clinics in universities and of speech correction departments in public school systems. Despite these encouraging developments, however, the National Hospital for Speech Disorders in New York City still remains the only *medical* institution for the diagnosis and treatment of speech and voice disorders. Approximately 4,000 speech sufferers from all sections of the United States and many foreign countries are treated in the Hospital every year by the institution's staff of otolaryngologists, psychiatrists, psychologists, speech and voice clinicians, and other workers. All types of speech and voice sufferers are represented, and perhaps the best way to convey some idea of the diverse conditions encountered in this field is by presenting the case histories of a number of patients seen in the Hospital during the past year.

CASE NO. 1. STUTTERING

Harold W., twenty-two years old, presented a tonic stutter accompanied by other physiologic symptoms of tension and anxiety such as cold, moist palms, exaggerated reflexes, and tachycardia. Speech was characterized by severe blockages, often lasting several seconds, during

which time the patient contorted his face and jerked his head spasmodically. The disorder varied in severity, the patient reporting that there were periods during which he had little or no difficulty.

The patient was the oldest of three children. His father was described as being domineering and bad-tempered; his mother was characterized as "high-strung"; and a maternal uncle was said to have stuttered. The patient's speech disorder was alleged to have been first noticed when he started kindergarten at the age of five. It became progressively worse as he grew older and suffered the penalties attached to stuttering. Sensitive to the teasing of classmates, he became seclusive and finally withdrew from high school in his senior year. Attempts to find a "cure" for his stuttering, which included taking a series of chiropractic treatments, had merely resulted in making the stuttering worse.

This history brings out a number of points which are in general typical of the stutterer and his disorder: the early onset of the speech disturbance; the evidence of emotional instability in one or both parents and of stuttering in the family background; the adjustment difficulties in school; the increasing tension and anxiety and concomitant increasing severity of the speech disorder; the development of secondary symptoms (in this case, adventitious movements of the facial muscles); and the variation in severity of the disorder, depending to a great extent upon variation in environmental pressures.

As the history suggests, stuttering is a psychosomatic condition in which the emotional factor is of paramount importance. In treating it, the National Hospital has found group psychotherapy most effective. The new patient is placed in what is termed a "low pressure" group where he is given psychologic insight into his condition and daily opportunities to act against his symptom by discussing problems that are brought up in the group or presenting a brief talk before his fellow patients. As he progresses, he is transferred to other groups in which the stress increases. He also takes part in such informal group activities as dancing, dramatics, and club meetings. Group psychotherapy in its various forms is supplemented by individual interviews with the psychiatrist and by relaxation therapy to reduce neuromuscular tension. Through this multiple treatment, the stutterer's old unhealthy attitudes and reactions are broken down and a more stable, more secure, more confident personality is gradually developed, so that the patient becomes capable of withstanding the

stresses of the everyday environment without becoming disorganized and demonstrating his disorganization in his speech.

Case No. 2. Hysterical Aphonia

Sister Mary C., a nun, age thirty-three, on presenting herself at the Hospital complained of aphonia (loss of voice) which had persisted for approximately one year. Several physicians had been consulted during this period and various diagnoses had been made and therapeutic measures prescribed. However, despite these measures, which included a tonsillectomy, the voice condition remained unchanged. When examined in the nose and throat clinic of the speech hospital there was no evidence of any pathologic condition of the larynx, and the tentative diagnosis of hysterical aphonia was made. Several facts elicited in a psychotherapeutic interview with the patient confirmed this diagnosis.

The patient was a teacher in a parochial school, and material brought to light during the interview indicated that she felt inadequate in her position. She offered the information that whenever a visit from the supervisor of schools in her diocese impended she became extremely apprehensive and "nervous." Asked about her reactions in the classroom during the actual visits from the supervisor, she mentioned that she had undergone the ordeal only once because she had had colds or laryngitis on the three or four other occasions when he had visited her school and this had kept her out of the classroom. She recalled, after considerable questioning, that her present voice condition had developed from such a "cold" and that its onset had preceded by a day a visit from the supervisor. But unlike the previous attacks, the condition on this occasion had persisted and it had become necessary for a substitute to take over her class. The Mother Superior had subsequently arranged for the patient to be transferred temporarily to a children's hospital where she did no teaching and where she expressed a desire to remain.

The aphonia in this case was an unconscious escape mechanism by means of which the patient removed herself from a situation which was distasteful to her without risking censure or loss of self esteem. Her voice was readily restored by suggestion, and an explanation of the psychic factors which had caused the aphonia was given the patient. It was suggested to the Mother Superior that the nun be allowed to continue in the children's hospital, where she professed to be very happy, rather than be returned to her teaching duties. She has made a good adjustment in the hospital environment, and there has been no recurrence of the aphonia.

Case No. 3. Organic Aphonia

Irving W., an insurance salesman, age forty-nine, on consulting his family physician, complained of hoarseness of several days' duration. The physician, after a cursory examination, diagnosed the condition as laryngitis and prescribed local medication. However, when the disorder grew progressively worse, he suggested that the patient consult a nose and throat specialist. The specialist, after a thorough laryngeal examination, ordered a biopsy. The results of the biopsy confirmed the surgeon's suspicion that the patient had cancer of the larynx, and immediate laryngectomy was advised. The operation to remove the larynx was performed a few days later.

After the operation the patient found himself completely aphonic. Although he had been told that removal of the larynx meant the loss of his voice, he was unprepared for the actuality and it was an extreme shock to him. "I tried to ask the nurse to change my position in bed," he recalled later, after he had enrolled in the speech hospital's postlaryngectomy clinic. "I moved my lips but there was no sound! Suddenly I was crushed by the realization of my plight. I was voiceless precisely as the blind are sightless. How could I return to my business where everything depended on speech? How could I communicate with my wife and children? I was beaten, through...."

Every year several hundred persons—in the proportion of approximately twelve men to every one woman—fall victim to cancer of the larynx and have to have that organ removed. The majority of them are in the middle decades of life, although occasionally the condition develops in young men and women in their early twenties and thirties. Happily, the operation to remove the larynx usually saves the patient's life. However, it confronts him with a new and what seems to many sufferers, as it did to the patient whose case has been cited, an insurmountable problem, for the operation that saves the patient's life robs him of his voice. Until a few years ago, such a patient was doomed to remain speechless unless he used a cumbersome and unsightly mechanical device which produced an unpleasant artificial voice. But in the postlaryngectomy clinic of the National Hospital for Speech Disorders these patients are now taught to speak again without any artificial means, by the expedient of aspirating air into the esophagus, or food tube, and then regurgitating it and producing voice in this way.

The technique of developing an esophageal voice takes patience to master and here group therapy as a supplement to individual instruction is of vital importance, for the newcomer in the postlaryngectomy clinic is encouraged by the success of more advanced patients to persist until he has attained his objective. One of the greatest satisfactions in medical rehabilitation work is to see these patients, who less than a century ago would have been doomed to death, not only saved but returned to society as happy, useful members.

Case No. 4. Falsetto Voice

Milton L., a post office employee, age twenty-one, complained of a high-pitched, feminine voice which caused him great embarrassment and retarded his vocational advancement. He stated that he had "always had" a high voice and that there had been no change during pubescence. He had been subjected to a number of traumatizing experiences because of the disorder and was extremely sensitive and retiring. He was especially disturbed by the fact that whenever he used the telephone he was addressed by the other person as "Miss" or "Madam." He had consulted a voice teacher and several physicians about the condition. One of the latter had given him a series of hormone injections, without result.

When he was seen in the speech hospital, the patient's voice was found to be in the falsetto range, and his larynx was in an abnormally high position in the neck. No evidence of glandular dysfunction was present. The larynx was lowered by manipulation, and as a result the pitch of the patient's voice was brought down to within the normal male range. With the change in his voice there was shortly a very noticeable change in his personality as well.

In the majority of instances, a falsetto voice appears to develop initially as a protest against assuming the adult masculine role. The patient typically gives a history of having been a shy, sensitive child. Such a child is more than ordinarily embarrassed by the somatic developments of pubescence, and especially by the voice alteration, which gives to the world objective evidence of his approaching maturity. Striving to cling to the security of childhood, he unconsciously inhibits the voice change. Through constant misuse of the laryngeal muscles, the levators remain in dominance, keeping the larynx high in the neck so that the childish treble continues as a permanent feature. In treating such a condition, it is necessary to lower the

larynx, as in the case cited, and frequently it is advisable to institute psychotherapy to counteract the deleterious effects which the falsetto voice has had upon the patient's personality over a period of years.

Case No. 5. Aphasia

Anthony S., age fifty-six, presented a case of aphasia. Some years ago in an attempt to part two friends who were quarreling, he was hit on the head with a hammer and was knocked unconscious. On regaining consciousness twenty-eight hours later, he was unable to speak and thereafter was subject to frequent convulsive seizures. Subsequently a brain surgeon performed an operation in which he took out part of the parietal bone, after which the seizures became less frequent and the patient was able to talk, although with considerable difficulty.

When admitted to the speech hospital, he could repeat words after the examiner but could not name familiar objects. When the names were given, however, he immediately recognized them as correct. Asked his address, he would hesitate and then give the street number incorrectly as 258, transposing the first two numerals; but on being requested to write the number, he would jot down, correctly, 528. His understanding of language was good, but his ability to use it was greatly impaired. Spontaneous speech was halting and fragmentary, and meaning was conveyed by single words or simple phrases rather than expressed in sentences.

Aphasia is a language disorder due to disease processes, injuries, or other involvements of the language areas of the cerebrum which affect the comprehension and use of the symbols of speech. The symptomatology varies. The patient may be completely bereft of speech, or he may be unable to evoke the memory of certain words or classes of words, such as nouns or verbs. On the other hand, he may have an intact vocabulary, but a vocabulary whose meaning is lost to him; in such a case, the patient can usually speak fluently but his conversation is a jargon, meaningless to the listener and presumably to the patient himself. Often there are related difficulties in reading and writing.

Occasionally there is a spontaneous partial or complete recovery from the aphasia as the acute stage of the pathologic process subsides. When there is no spontaneous recovery of the speech function, or when recovery is incomplete, as in the case mentioned, speech re-education is indicated. The aim of such re-education is to build up a

new set of associations between words and the ideas and objects for which they are symbols. Specific remedial procedures must necessarily be adapted to the individual case.

Case No. 6. Rhinophonia Associated with Myasthenia Gravis

Margaret L., fifteen years old, developed an unpleasant nasality a year previous to her initial visit to the speech hospital. The condition disappeared occasionally, only to recur—a fact which at first suggested psychic causation. Finally, on one recurrence, the nasality persisted and a nose and throat specialist was consulted. Attributing the disorder to an adenoid mass in the nose, he removed the adenoid tissue, but there was no change in the patient's voice condition. A psychiatrist, who was next consulted, diagnosed the disorder as hysterical in nature and recommended psychoanalysis. Shortly thereafter, the patient was brought to the speech hospital.

While the history did indeed suggest hysteria, various complaints which the patient mentioned—among them a tendency to lose strength in her hands and to experience difficulty in swallowing when she was fatigued—pointed to the possibility of an organic condition. These symptoms, considered together with the nasal voice, a slight ptosis of the upper eyelids, and a barely perceptible drooping of the corners of the mouth, suggested myasthenia gravis. To make a definite diagnosis, the patient was given an injection of Prostigmin and within a few minutes all her symptoms, including the nasality, disappeared. The possibility that the dramatic disappearance of symptoms might be due to suggestion was eliminated by giving the patient, on subsequent visits, alternate injections of sterile salt water and of Prostigmin. No change followed the injections of salt water.

Myasthenia gravis is an organic condition, of indeterminate etiology, characterized by progressive muscular weakness. In many instances, as in the one discussed, the early symptoms are attributed to psychic factors because of the absence of any well-defined pathologic changes and also because frequently there is a variation in symptoms, their severity increasing as the patient becomes fatigued. There is no known cure for the condition, but if diagnosed early the symptoms may be controlled by proper medication.

The cases which have been presented are examples of only a few of the many conditions which come under the observation of the speech specialist. They emphasize the necessity for careful medical

evaluation and supervision in this field. Too, they emphasize another very important point which Dr. Edmund Ezra Day, President of Cornell University, made on the occasion of the twenty-fifth anniversary of the National Hospital for Speech Disorders. No one individual or professional group is equipped to treat all the diverse abnormalities which are encountered in this field. To deal with them adequately requires the cooperative efforts of the otolaryngologist, psychiatrist, psychologist, social service worker, and speech and voice clinician, for, as Dr. Day so aptly stated, in treating speech and voice disorders "it is necessary to pool the contributions of a great many different pots of medicine and education."

PART III

PSYCHIATRIC DEVELOPMENTS

PSYCHOSURGERY: THE NURSING PROBLEM *

By FLORENCE R. EWALD, R.N., WALTER FREEMAN, M.D., Ph.D., AND JAMES W. WATTS, M.D., F.A.C.S.

The frontal lobes of the brain, we believe, are concerned with the highest forms of mental activity. They are not centers of intelligence, as such, but rather centers for introspection and foresight, for social consciousness, for constructive imagination, for altruism, self-sacrifice, loyalty, and morale. The frontal lobes are thus of extreme importance in the life of the normal individual.

When they become diseased through atrophy or tumor, the individual loses gradually his capacity to function in a social environment. The lobes may also become deranged functionally, in which event the functions of foresight and self-consciousness become perverted to such a degree that the individual may believe that the world is against him, that people are talking about him, that he has committed unpardonable sins, or may entertain other such delusions. If such ideas become sufficiently absorbing, the individual loses his capacity to function in society just as much as if the frontal lobes were destroyed by a tumor. In these cases of functional derangement showing the symptoms just described, it is not the ideas themselves that are so disturbing but rather the emotional charge which accompanies them and causes them to become fixed. If the painful emotions associated with the ideas can be decreased or eliminated, however, the ideas no longer distress the patient and there is relief of mental pain.

Inasmuch as the thalamus is generally regarded as the center of emotion and is largely responsible for the feeling tone which accompanies ideas, interruption of the pathways between the thalamus and the frontal lobes is desirable if the emotional component of ideas is to be reduced. The operation, *prefrontal lobotomy,* which belongs in the general field of *psychosurgery* (operations upon the brain for the relief of mental and emotional disorders), has been developed to

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accomplish this purpose—that is, to reduce the emotional charge attached to abnormal ideas.

The Operation

Prefrontal lobotomy is performed through two burr holes usually placed in the coronal suture. The surgeon inserts a blunt knife and swings it through an arc in such a way that the main portion of the thalamofrontal radiation (the fibers making up the pathway between the thalamus and the frontal lobe) is severed. Interrupting the thalamofrontal radiation in this way causes a reduction or disappearance of the emotional feeling tone that attaches itself to the ideas elaborated by the frontal lobes.

The surgical problem is to place the incision so as to reduce the emotional charge just enough that the ideas no longer take possession of the individual, yet leave him enough emotional toning to apply to the practical problems of life. Although the ideas may persist for a while, they no longer prevent the patient from turning his attention toward the outside world.

INDICATIONS. Prefrontal lobotomy finds its most satisfactory application in individuals who are suffering from severe anxiety, agitation, nervous tension, and depression. When operation is performed in such cases, the symptoms often vanish on the operating table. Patients who are harassed by hallucinations, delusions, phobias, and hypochondriacal ideas lose the emotional tension associated with these symptoms, although the ideas themselves may continue for some time in attenuated form.

There is still a chance of success in long-continued cases as long as the emotional reactions are still vivid. When emotional deterioration has taken place, prefrontal lobotomy can no longer be expected to succeed. The operation thus limits itself to the treatment of schizophrenia in the active phases, involutional depressions, obsessive tension states with or without compulsions, and chronic anxiety states.

It goes without saying that prefrontal lobotomy is a procedure of last resort which is used when all other methods of treatment have failed. This does not mean, however, that it should be delayed until emotional deterioration is well advanced. Time relationships are not so important, since some cases of twenty to thirty years' duration may recover.

The surgical mortality is about 3 per cent, and in about 2 per cent of the cases the organic changes due to operation are disabling. The results are usually permanent when adequate operation has been performed, but secondary operations are needed in about 15 per cent of the cases.

RESULTS. The whole idea of the operation is to cut down the emotional component of the psychosis or neurosis to a degree where the patient can live in peace with himself and yet leave him sufficient emotional control to carry on useful activity. The majority of our patients are usefully occupied (employed or keeping house) outside the hospital as the result of operation. This does not mean that they are quite the same persons or have the same capacities as they did before they became sick. Personality changes in the direction of a more superficial, less serious perspective on situations may develop.

None of our patients has shown special ability along the lines of music or art or literature. None has yet gone back to professional work in medicine or nursing, and only one has served with success in the armed forces. Many patients are content with routine jobs that they would previously have thought beneath their dignity. On the other hand, many others go back to their previous occupations with renewed zest because they are no longer harassed by feelings of doubt and insecurity.

Our main concern here is with the important problem of retraining the operated individual. Prefrontal lobotomy has the effect of a surgically induced childhood. As the patient first emerges from the confusion, listlessness, and inertia that immediately follow a prefrontal lobotomy, he presents an altered personality which is not at first a healthy personality. The best one can say is that it is an immature, sometimes infantile, personality. Consequently, as in the training of children, the early period is the one in which most can be accomplished. Patients "grow up" with great rapidity in some cases and very slowly in others. Convalescence can be greatly accelerated by knowing what to look for and by meeting problems vigorously as they arise without anger or discouragement. The objective consists of getting the patient to assume responsibility for his own activities rather than merely fostering dependency.

After prefrontal lobotomy has been performed, one has an unique individual to deal with. Even though the mind and memory have

not been affected by the operation, the patient has descended emotionally to the level of a child. He will react to various situations much as a child does, and must be treated accordingly.

Postoperative Care

Actual surgical nursing care, barring complications, is minimal, yet should not be treated lightly. There is a slight rise in temperature and pulse rate. The pulse and respiration should be taken every hour for at least twelve hours postoperatively. The temperature is taken rectally every two hours. Blood pressure is taken every hour for twenty-four hours. The head of the bed is kept elevated provided the systolic pressure is 100 milligrams of mercury or above. If the pressure drops below 100, the bed should be kept flat until the pressure again reaches 100 or above, at which time the head of the bed is again elevated. After the first postoperative day the temperature, pulse, respiration, and blood pressure can be taken routinely every four hours. Pain is slight. Complications requiring the surgeon's care are most apt to develop within forty-eight hours, hence the need for close observation.

Immediate postoperative care requires that the patient be kept quiet. Pain or excessive restlessness may be controlled by the use of sedatives such as codeine or phenobarbital. The use of warm baths for highly excitable or extremely restless patients is sometimes useful. Narcotics and sedatives should be utilized sparingly.

Patients are completely disoriented as to time and environment, and confused as to actualities for the first few days. Vomiting usually occurs during the first twenty-four hours, and a liter or two of 5 per cent glucose in saline may be given intravenously. Liquids may be given as soon as tolerated, followed by solid foods. As a rule, after forty-eight hours the patient can tolerate a high-caloric, high-vitamin, regular diet. Occasionally there is a tendency for patients to choke due to the inertia which is present. A patient should never be left alone while eating until the inertia has been dissipated to the point where there is no longer any danger of choking. Patients must be taught to eat again; they have a tendency either to dawdle with their food or else to eat too rapidly. Either reaction can be overcome by training. Teaching them to eat correctly takes considerable patience.

Care of the wound itself is very simple. The head is bandaged in the operating room, and as a rule this bandage remains until the sutures are removed on the fourth postoperative day. Patients do not realize they have been operated on and may not know there is a bandage on their heads, and even if it is shown to them in a mirror they do not know why it is there. Edema and ecchymosis are sometimes present around the eyes; the bandage at times becomes too tight and patients have a tendency to try to push it off. This can be controlled by two simple methods. In the first, the bandage is nicked in the center of the forehead; this relieves the pressure and the patient becomes more comfortable. The second method utilizes the desire of the patient to play with rag dolls or bright objects; keeping his hands and mind thus occupied will help prevent him from picking at his bandage.

At times the patient urged by nature will get out of bed to go to the bathroom. He may or may not find it. One of our patients said of her wastebasket, "My, that was the biggest toilet seat!" Consequently the patient should not be left alone during the first few days. If it is necessary for the nurse to leave the room, sideboards should be used.

Rag dolls, bright objects, newspapers, and radio usually provide enough activity and recreation as well as stimulus for the average patient during the first week. Building blocks, picture books, and crayons are a source of delight to others. Walks and theaters may come later.

Convalescence

Often the patient carries to the convalescent period his hallucinations and delusions, but there is decreased emotional tone and tension connected with them. Although the pathways have been interrupted by surgery, the patient may continue to show the same behavior pattern. For example, a patient who suffered from fear of contamination and who washed his hands thoroughly every five minutes preoperatively may continue, postoperatively, to wash his hands from habit. However, he no longer fears contamination and the habit pattern is soon dissipated. Another example is that of a patient having auditory hallucinations prior to operation. He may continue to have them, but the intensity of the voices is gone and he pays little or no attention to them as they no longer disturb him.

In this particular field a nurse should be very conscientious in determining whether these actions are a continuation of previous patterns, mere echoes, or whether they represent a recrudescence of the mental disease necessitating a more extensive operation. Keeping an accurate record of what the patient says and does will be of valuable assistance to the psychosurgeon in determining the efficacy of the operation.

Incontinence is present and necessitates retraining the patient as one does a child. Starting on the third postoperative day, a bedpan is placed at regular intervals. The length of the intervals between voiding and defecation can be determined by the frequency with which these occurred the first few days. Ambulatory patients can be seated on the toilet hourly at first and later at less frequent but regular intervals. The association will filter through and incontinence gradually will be controlled. Occasionally patients have been diapered with turkish towels when out for walks.

Nurses, aside from giving professional care, should literally become mothers to these "children" and teach them the rudiments of a normal child's life. This in itself opens up an entirely new field of nursing care. Many times a hug or a kiss from a nurse will do much toward developing these emotional children into lovable grownups. Kindness and firmness can accomplish a great deal.

Inertia is probably the most difficult obstacle to displace. Patients are willing to sit for hours doing nothing and must be pulled out of their chairs to get them started. They have the knack of procrastination and will keep saying, "I'll do it in a minute," or "Yes, I will." Yet they will not make the first move to do anything. They have absolutely no regard for time. A patient who is pulled or pushed in an endeavor to get him started may become resistive and start striking the nurse. This is a mere tantrum and can be controlled by firmness on the part of the nurse, similar to that of a mother treating a recalcitrant child. One thing to remember is that the nurse must be in control of the situation at all times and her orders must be obeyed to the letter. Petulance is frequent after a tantrum or episode of this type, but it quickly evaporates and sulking is very unusual. The end result is good, for once a patient realizes he cannot bully the nurse or others, the field is open to training and the cultivating of good habits.

The span of concentration is short and must be developed. To have a patient stop in mid-stream while getting dressed and start doing something entirely irrelevant is not unusual. With patience and perseverance the nurse can always guide the patient to do what is necessary even though it may take three times as long to accomplish it as it should ordinarily. The patient should always be praised and rewarded in some fashion when he properly follows the dictates of his nurse. If he has performed his duty haphazardly, one should overlook this fact, for the important point is that he did it, no matter how. Perfection may come later. Occupational therapy plays an important part in the welfare of these emotional children and in shortening the length of time needed to bring them back to a level of acceptable social behavior.

At times the patient may become amorous. The nurse should meet such advances with tact, resourcefulness, and without becoming flustered. These advances have little meaning even to the patient himself and are probably due to the lack of emotional control.

Many lobotomy patients eat too much. They raid the icebox and snatch food from the table or even from their relatives' plates. Some of them are always hungry, never seeming to realize that they have eaten enough. The nurse has a duty to perform here, since all too often other members of the household will look upon a good appetite as a sign of recovery of the patient and encourage him to eat more. Lobotomy patients should gain, but not more than twenty-five to forty pounds in the first year after operation. Restraint is necessary while the patient is unable to control the appetite.

Abstinence from alcohol is advised. Many a good prospect has turned out badly because of indulgence in alcohol. The craving seems to be as difficult to control as the craving for food, and the results are sometimes disastrous.

PUNISHMENT. We have stressed the need of treating the patient as a child, particularly in relation to rewards. However, the subject of punishment should also be discussed, since this is decidedly unorthodox as far as ordinary or even psychiatric nursing is concerned.

Lobotomy patients sometimes need to be punished. While an ordinary attack of stubbornness can often be overcome by diversion of the patient's attention to some other task, or by waiting for a little while longer, nevertheless there is apt to come a time when it is a question as to whether the nurse takes control or allows the patient

to win out. In the latter event the nurse's usefulness is impaired, and if the situation is too often repeated she loses her value to the patient. When the issue is clear-cut and nothing can be gained by waiting or persuasion, then it is time for action of a sufficiently vigorous character to make the patient realize in his childlike reasoning who is boss. Spanking is as effective a method as we know, since it seems to recall childhood experiences of a similar nature.

If the patient is too big for the nurse to handle alone, family assistance may be required. We would stress the fact that a spanking is good for the patient, though it may distress the family. The patient who needs a spanking is still in the childish stage and consequently does not feel the shame and indignity of the procedure as would a normal individual. He will harbor no grudge, and after cooling off for a few minutes will respond pleasantly to the nurse's requests. Then is the time for a warm and friendly act on the nurse's part to maintain the good will of the patient.

Punishment does not need to be severe, but it must be prompt, vigorous, and pointed if it is to have a good effect. These patients are not at all subtle, and they will be utterly unconcerned by the deprivation punishments so successfully used in older children. Usually, when a stubborn streak develops, a "roughhouse" is the best way of breaking it up. Pulling, pushing, grabbing around the neck, tickling in the ribs, or wrestling in an undignified way will bring the patient around panting and laughing, and the resistance will drop from him. It is exhilarating if unconventional, this type of nursing!

Home Care

Home care is much better than a hospital or nursing home during convalescence. In an institution the whole staff is geared to the idea that the patient is abnormal, must be cared for, waited upon, and cleaned up after. His wants are constantly catered to, for after all he is paying for these most intimate personal services. The lobotomy patient, in his childlike way, will fall in quite happily with this sort of régime and, if allowed to dominate his environment to such a complete degree, will never regain his independence or sense of responsibility.

At home, on the other hand, the patient is under constant pressure to conform to the norms of family behavior. He is supposed to get

up and dress in the morning, to come to meals on time, to pick up his things after use, to take care of his clothes, to use the bathroom with due consideration of the needs of others, and to restrain himself in contacts with other members of the family. At home, the nursing problem revolves about the patient's social development, and anything that fosters this is desirable. When the nurse enters the home with the patient, she should proceed to direct the patient in the matter of caring for himself and his effects, and she should indicate by word and deed to the family the necessity of continuing that education for a prolonged period.

TEACHING THE FAMILY. It is not an easy task for the nurse to teach the family, but it is very essential. It is difficult, indeed, to teach families that they have an unique individual entering their home life. Yet a place in the family must be provided for this individual if he is to recover. The family must be taught that this member for a time will be a drone in the hive, and must tolerate him as such willingly, for congenial surroundings are important to the patient's welfare.

If relatives can be given an adequate understanding of the patient, they can do much to help him. Through tact and diplomacy, the nurse can bring the family under control to the point where they will accept their own responsibility toward their loved one. The nurse should make the family understand that they must do their part toward making the patient well and not try to get someone to do it for them. Because of ignorance and impatience on the family's part, many patients are retarded in their emotional growth.

Many arguments and obstacles may turn up, but the nurse must conquer them for the sake of the patient, even though it may occasionally leave an unpleasant taste in the nurse's mouth and may incur the wrath of the family. Families must be taught to visualize the end result rather than to think of immediate conditions.

Families can speed the patient's recovery by insisting that the patient perform household tasks even though some one may have to follow up and do them over again. They must also learn to tolerate the inertia and procrastination so evident. If the inertia is extreme, the physician may order amphetamine to help overcome it.

The family must also be told that postoperative convulsions are not uncommon, and should be instructed about how to manage a convulsion. They should not become excited. The patient should

be placed on a flat surface, and a towel or handkerchief should be inserted between the teeth to prevent the tongue from being bitten. Following a convulsion anticonvulsive therapy is prescribed, preferably sodium dilantin or phenobarbital, for an extended period.

The family must be taught to remain cool, calm, and collected at all times, despite the stress of any given situation. This is reasonable in itself. A child never becomes unduly excited or afraid unless it sees its mother alarmed and panicky. In the same way, a patient will know no fear or excitement unless such fear has its origin in the family or nurse. Pleasant contacts and cheerfulness are conducive to well-being in any individual and are vital in developing prefrontal lobotomy patients into socially acceptable individuals. The manner in which the family cooperates makes the final difference between success and a threatened relapse of the patient.

The nurse herself must be tolerant of all conditions, including patient and family, and must be a go-between for all parties concerned. It is not an easy task, but it can be accomplished, and must be, for the welfare of the patient.

THE ROLE OF THE NURSE IN PSYCHIATRIC REHABILITATION

By PAULINE LANDRY BOMBARD, B.S.N.E., R.N., AND LEONARD F. STEVENS, R.N.

The nurse in her role as a member of the rehabilitation team has an enviable position, the inside track so to speak. This position, along with the privileges it carries, places a heavy mantle of responsibility on the nurse's shoulders. The load must be carried, and its obligations efficiently and carefully performed. This duty must not be done as an automaton, but to be successful demands every ounce of ingenuity, imagination, empathy, and interest that it is possible to muster. It has been truly said that man does not live by bread alone, and it is this thought we must use to guide us. We need to supply much more than the physical means for recovery. We, working strongly as a team with all the parts integrated, must provide in some manner an answer to the patient's social drives. He must feel a need, a desire to learn, a desire to return to his niche in the scheme of things; for where there is no felt need, there is no learning and re-education.

We are right in saying that the dependent variable or the results are entirely under the control of the independent variable or the stimulus; the patient's set, if you will. Here again for any phase of a rehabilitation program the nurse has responsibility. Her attitudes may be the crucial factor in the entire situation. Instead of being appalled by the seemingly difficult job and the lack of time and facilities, it is far more worth-while to set a goal and get started. It is necessary to apply all our efforts, our knowledge, and our ingenuity to constructive adjustments. It is only with united efforts, the close working together of all members, that maximum results are possible.

The basic concept of this paper is the acceptance of the individual, his wants, needs, interests, and capacities, as material with which to build the best possible structure. A firm structure can only be built through a cooperative rehabilitation program.

We think only of total rehabilitation in modern medicine, and that is based on a united effort with emphasis on the total person. The nurse's role in this program is important, but like the roles of all other members of a team it is dependent, interrelated. Her position is comparable to that of a keystone in an arch. All stones are necessary, but remove the keystone and the arch is greatly weakened.

The Nurse in Rehabilitation

From the standpoint of nursing care, rehabilitation begins with the admission of the patient to the hospital. From that time on, all that is done for him has as a goal complete resocialization.

On admission, particularly, the nurse functions vitally in establishing a therapeutic, emotionally safe atmosphere for the patient. She is also instrumental in changing preconceived, unwholesome attitudes and in initiating and stimulating wholesome reactions. In addition, to the nurse falls the responsibility of interpreting physicians' orders and hospital policies to the patient. At all times the nurse's remedial approach helps to guide the patient along an amenable, reassured, and cooperative path. In other words the nurse is the empathetic agent. Through her sympathetic attitude, a constructive feeling tone is radiated which raises the patient's self-respect and sense of importance. Furthermore, the nurse accepts each patient as a person apart from other individuals in the group, recognizing but not condemning his liabilities and assisting him to build on his assets a new foundation for a more secure and stable personality structure.

From the physician's and therapist's viewpoint a good nurse is quick to know her patients, or recognize their needs, assets, and liabilities, to evaluate these, and to make recommendations to the physician and therapist. The nurse contributes further by observing signs of progress as well as unfavorable reactions in the patients' reeducational process. She records her observations free from prejudice or interpretation. These records, descriptive in character, are valuable in presenting a graphic picture of the patient: his appearance, behavior, and conversation specifically, and his adjustment to the ward activities, other patients, and personnel in general. These data, along with additional information from other sources, serve as a basis for a planned program of activities suitable to meet the

patients' needs, interests, and abilities and keyed quantitatively as well as qualitatively to the amount of progress he shows.

During the early period of hospitalization, the activities of the patient are usually restricted to the immediate ward until his physical and emotional capacities are known and an individual program is organized. In the care of the underactive patient, the nurse is concerned with subtle but very close observation to prevent self-destruction, provide adequate nourishment, and motivate the patient to participation in group activities.

An urgent need exists to arouse in the patient interest in his surroundings and to bring him back through group participation activities into the social milieu he shuns. To function in this contributory part of the rehabilitation program a great deal of energy must be expended and much interest and enthusiasm manifested by the nurse. Where self-destructive tendencies exist, the will to live must be instilled in the patient before a constructive plan of activities can be set up. The patient is usually in great need of emotional security. The attitude of the nurse in this instance must be particularly encouraging and inspiring. If limited activities are allowed, the equipment used must be restricted to noninjurious materials. Any activity given the patient must be within the limits of his ability to perform. The nurse is responsible, above all, for observing and reporting signs of further depression and despair.

On the other hand, in the care of overactive patients, the objective is to restrict activity, conserve energy, and direct the tremendous drive into constructive rather than destructive channels. Tact, calm, and unruffled reactions are essential even in the face of abuse. Moreover, a firm but sympathetic approach is helpful in meeting the difficult situations which might arise.

Aside from special consideration in such outstanding situations as have been mentioned, the nurse is responsible for the supervision of the patient in the general health activities of the day. She supervises the patient's personal appearance and his personal and mental hygiene. Supervision of the patient's feeding habits and checking on elimination are routine measures assigned to the nurse. These of course are directed to promote good physical health, an important basis for further rehabilitation efforts.

In most instances, habit training is an important part of the rehabilitation program. This is particularly so in the care of new

patients, continued treatment patients, and postlobotomy patients. In all instances the daily habits of the patient are routinized to assure a maximum amount of personal health. Such activities as bathing, eating, sleeping, and elimination are carried out on a schedule basis. This system regulates the patient's daily habits and restores organization in his pattern of living. The nurse's responsibility is to see that the prescribed activities are undertaken at the set time. She is responsible for stimulating the patient's interest in the program and noting the effects of the system on the patient. Thus many opportunities arise to assist the patient to unlearn old habits of personal hygiene and to teach him good personal health measures with the objective that he will carry these over into his life in the community.

In the daily routine activities of the ward, the nurse is responsible for the supervision of the patient's appearance. It is a recognized fact that as the patient's mental condition improves so will his appearance. At this time, interest should be centered on making the patient take an active interest in his personal appearance. This is a very important point, particularly in the care of female patients, where the change in appearance is very marked as the patient improves. Where facilities are available, it is the nurse's responsibility to stimulate the patient's interest in her appearance by scheduling her for a wave set or manicure. A nurse is usually keen to notice that the beauty treatment has been influential in creating a definite therapeutic effect on the patient. She makes it a point to compliment the patient on her appearance and arranges for other appointments. Furthermore, she encourages the patient to perform these tasks for herself and thereby creates for the patient a resocializing influence. Resocialization is an important phase of rehabilitation. This is but one example of the many seemingly trivial tasks performed routinely daily by the nurse which contribute immeasurably in raising the patient's morale and restoring his self-respect.

Generally, the principles involved in routine psychiatric nursing procedures are similar in all institutions. Techniques vary, however. The individual attention given to each patient varies also directly in proportion to the number of patients in her care. Although psychiatric nursing care varies quantitatively in changing situations, qualitatively it should show no variation even in the face of shortages of time, materials, or personnel.

Relatives and Visitors

The importance of the patient's contact with visitors, relatives, and friends must not be overlooked in his resocialization program. Here again the nurse has frequent opportunity to aid in overcoming and modifying unwholesome attitudes, prejudice, and resistance toward hospitalization and special therapies. The nurse must also be a good salesman in her contact with relatives. There is frequent occasion to reassure the family on continued need for hospitalization and to point out the advantages of consenting to special therapies.

In instances where the home environment has been a contributing factor in the precipitation of the psychosis, visits from relatives may prove very distracting to the patient. Such instances call for the utmost in diplomacy and tact on the nurse's part. There may be need to refer the matter to the social service department for further investigation. Not infrequently it is found that relatives are in as great need of guidance in their interpersonal relationships as is the patient. There is opportunity to teach principles of rehabilitation to the family during visiting time, particularly so in the care of a convalescent patient who is to be allowed visits home. Occasion then arises to instruct the family in their approach to the patient so that their attitude will be not as to an invalid with many unusual liabilities, but as to a person who is to be respected for his abilities and accepted in spite of his failings.

Social Service

A social service department that functions efficiently and meets the patient's needs is an invaluable part of a total rehabilitation program. The activities of social service are many and are limited only by the interests, training, and initiative of the workers. The worker often has patient and family contacts before and after other members of the rehabilitation team. In addition to this, during the patient's hospital stay she acts as a valuable tie with the home. It is clearly seen that the knowledge gained in these contacts is valuable not only to complete the case record, but more definitely as an aid in intelligent patient care. The nurse often nurses better because of this knowledge. The social service department more truly meets patients'

needs if it is closely integrated with other therapies. The patient will often by direct word or more subtle behavior give the nurse a cue to social service needs. This cue must be grasped and directed into the correct channels. The patient's family and friends may need and wish assistance that is best given by this department. These needs are again more quickly observed in the nurse-patient relationship. The nurse then needs to know the functions of the social service department. This knowledge will aid in better integration of the nurse's and social service worker's duties. A good work relationship and complete understanding of each other's activities give best patient care.

Volunteer Workers

Volunteer workers are valuable auxiliary personnel in the rehabilitation program in any hospital. Adequately screened and properly oriented, their presence serves as an invaluable link for the patient to bridge the gap between his hospital ward and the community. This is particularly true in a neuropsychiatric hospital where the average stay extends over a long period of time and where the hospital is unfortunately too frequently isolated from the community. In most instances the nursing service assumes some measure of responsibility in training the volunteers.

On the ward the nurse functions as a leader and teacher in guiding the worker in her contacts with patients. Through suggestion she points out the patients most in need of diversional activities and assists the worker in her approach to the patients with particular reference to unusual reactions. She acquaints the worker with the patient's needs, with particular emphasis on problems presented. Through her own cheerful and enthusiastic approach, the nurse can stimulate the worker's interest.

It is hoped that the wide participation of volunteers in the psychiatric rehabilitation program which reached its peak during the war in service hospitals and is still to some measure continuing in Veterans Administration hospitals will not cease, but will continue to grow and spread to all types of hospitals. Not only do the volunteers furnish the invaluable link between hospital and community which we have mentioned, but they are also in a position to carry the tenets of mental hygiene back to their families and other members of the

community. They also function to an immeasurable extent in interpreting the hospital, its problems, and its policies to the community. In fact they bring the community to the hospital and the hospital to the community. Where the hospital budget is limited and dependent upon donations of materials for the success of the rehabilitation program, volunteer workers frequently aid in providing a source of information both for community agencies and the hospital itself.

Special Therapies

Briefly, the special therapies which are generally considered necessary for a satisfactory rehabilitation program are: habit training as mentioned previously, recreational and athletic therapy, occupational therapy, bibliotherapy, music therapy, medical therapies, hydrotherapy, educational and vocational therapy, and psychotherapy. The nurse is not expected to have complete knowledge of all therapies but must have a workable understanding of the objectives in each case and an ability to evaluate end results. Generally, in the special therapies the nurse acts as a coordinator between the therapist and the patient. She is a member of the rehabilitation "team." As one of that team she most frequently functions as a contributing unit of the rehabilitation council. At program planning conferences she describes the patient's reactions, discusses his expressed interests and needs, and assists in making recommendations for the continuation or alteration of the existing program. In situations where the nurse is not directly an active member of the rehabilitation council, her recorded notes and observations of the patient's ward behavior assist the group in interpreting his reactions to the therapies and assist in evaluating the amount of social progress he has made in his adjustment to the ward group. The nurse's notes contain observations relative to signs of fatigue and/or notations of evidence of wholesome gratification derived from the therapy.

After a program has become established, it is up to the nurse to motivate the patient. The nurse must sell the program to the patient by her interested and enthusiastic attitude. If a nurse is enthusiastic, her interest will sustain the patient's efforts throughout the usually long period of gradual and slow progress. If the nurse's attitude is one of indifference, the patient will reflect this poor attitude in a lack of cooperation, even active resistance to the therapy.

RECREATIONAL THERAPY. It is an understandable fact that the scope of any hospital's total recreational and athletic program will be dependent upon the limitations of the hospital budget and personnel ceiling. A good program of recreational therapy is most valuable in all types of hospitals, but particularly so in psychiatric hospitals where patients are up and about and lead a more or less sedentary life. Pent-up energy is directed into constructive rather than destructive channels, excessive energy is utilized to the patient's advantage, and the patient is a better adjusted person. After recreation the patient is more relaxed, sleeps better, eats well, and makes an easier adjustment to others in his group. All programs must of course be keyed to the patient's physical condition. Factors of age, sex, and disabilities must receive every consideration in making recommendations, particularly for participation in sports and athletics. Where there is but a limited recreational program, the nurse is called upon to initiate and participate in the recreational activities on the ward. These are usually in the form of games with cards, checkers, picture puzzles, dominoes, group singing, or outdoor walks, evening dances, and card parties. She assumes complete responsibility for this phase of care.

Where there is, on the other hand, an organized and functioning recreational program, the nurse's responsibility lies in assisting the therapists or technicians, in observing the effects on her patients, and in making recommendations. For example, the nurse will watch for signs of fatigue resulting from overexertion in patients participating in sports, or she may report that a depressed patient appears easily discouraged and his condition aggravated by a too competitive activity. Again, having observed that a particular patient suffers from mild insomnia, the nurse might recommend that he be included in light sports activities. Dancing is an excellent socializing agent. Many patients have never learned to enjoy dancing because of shyness and lack of self-confidence. A skillful nurse can give a patient self-confidence and reassurance by encouraging him to participate in the hospital dances. Simple ward parties offer excellent opportunity to teach the patient to dance and thereby arouse his interest in socialized hospital activities.

OCCUPATIONAL THERAPY. By definition, occupational therapy is a form of treatment characterized by the assignment of patients to purposeful physical tasks on the prescription of a physician for

remedial needs. Its aim is to provide functional and constructive activities for the purpose of hastening the recovery of the individual patient. The results are in direct proportion to the degree of individual prescription and care in supervising. Experience has repeatedly shown that the greatest benefits are always derived when it is applied specifically to physical and mental disabilities and under direct medical supervision. The value of this form of treatment is also in direct proportion to the amount of interest shown by other persons, not alone on the initial day but as the patient progresses from the simple to the more complex. The nurse here has a duty and an opportunity to help both the patient and the therapist. She needs to motivate and encourage the patient, and she can also be of much help to the therapist. She should not only indicate to the therapist the patient's original interests but also make it her responsibility to note reactions and interest changes as the treatment continues. These observations are valuable and should be passed along to other therapists rather than hoarded. We have many types of occupational therapy. A few of these are functional, diversional, and industrial. The use of industry as a therapy is so often misused that a word of caution is in order. The term *industrial* means use of the everyday work situation for therapeutic reasons. Too often it is found that this aim is lost and therapy goes out of the picture, with labor the only result.

The nurse is in an adjunctive position to the occupational therapist, but she occupies a key position, for this activity often needs to be integrated with nursing care. The nurse who plays cards with a lonely old man is in a sense using occupational therapy, albeit with an amateur standing. The nurse too is a good deal more likely to be around than her professional colleague. When the patient is idle, the world stops and reality takes on a dreamlike quality which is disintegrating. The use of occupational therapy either by the nurse or the therapist demands attention, the mists clear away, and healing begins.

BIBLIOTHERAPY. Among the therapies that have found increasing popularity and usage in recent years are bibliotherapy, music therapy, and psychodrama. Generally the nurse's responsibility in bibliotherapy is to be informed as to the content of prescribed materials, the motives behind the assignment, and the effects to be expected. As a rule the physician will discuss this in conference with

both therapist and nurse. Specifically the nurse should know what is available to the patient and the method of obtaining literature. The nurse should, moreover, arouse the patient's interest in the material assigned. If the patient is unable to obtain the assigned book, it is the nurse's duty to obtain it for him. She must also supervise the care of books, periodicals, and pamphlets on the ward and arouse in the patient a sense of responsibility in this respect. The nurse also sees that the material is returned to the library after use and records or reports the patient's reaction to the assignment.

MUSIC THERAPY. Although the use of music as a therapeutic agent dates back to Biblical days, its increased use in psychiatric hospitals is relatively recent. The nurse's responsibility in this therapy varies according to its use. Here again the nurse is responsible for general knowledge of objective, techniques, and results to be expected as well as the recording of observation of reactions to this treatment.

PSYCHODRAMA. Although psychodrama is usually considered a form of psychotherapy, for purposes of this paper it is being considered here as one of the specific therapies. The nurse's function in psychodrama is chiefly as in other highly specialized therapies. She should have some knowledge of the objectives of the therapy, the techniques, and results to be expected. Occasionally, however, she may be called upon to assume a role in the dramatization of incidents.

MEDICAL THERAPIES. To be effective, the medical therapies must usually be supplemented by a program which includes the contributing rehabilitative activities listed in this paper. In most instances electroconvulsive therapy, subinsulin and deep insulin therapy, and neurosurgical operations do not stand apart from the total rehabilitation program. They are in most instances but a means to an end, and their importance lies in making the patient accessible to further rehabilitation activities. Briefly, the nurse's function in the medical therapies is chiefly to prepare the patient psychologically and physically, to assist the physician with the administration of the treatment, to give follow-up care, and to observe and record the effects of the treatment. Where there is great fear, apprehension, or anxiety as-

sociated with the treatment, the nurse must allay the patient's fear through reassurance and aid him in developing the correct mind set.

In most convulsive therapies, the possibility of an attempt at self-destruction is an ever present threat which must not be passed over lightly. Any patient who shows an excessive anxiety and much despair requires subtle but close observation and a great deal of reassurance.

Because many of the neurosurgical operations are performed in general hospitals, it is important that the nurse have some knowledge of psychiatric nursing skills over and above her knowledge of neurosurgery. Likewise, if the operation is performed in the psychiatric hospital, the nurse must have knowledge of neurosurgical nursing. Following the postoperative recovery period, the patient's program will usually consist of a few of or all the rehabilitative activities mentioned. The nurse's responsibility during this time is to see that the patient is prepared for and escorted to activities on time. She supervises the habit training program, personal hygiene, and any other activity conducted on the ward under her direction. In most instances further responsibility in the program is dependent upon the general organization of activities—that is, whether nurses, students, or aides escort the group and whether the program is set up on a functional or individual basis or combination of both. In all instances the nurse is responsible for observing and recording the patient's ward progress and making recommendations accordingly.

HYDROTHERAPY. In most hospital programs, hydrotherapy consists of stimulating showers, the Scotch douche, cold and neutral wet sheet treatments, and neutral continuing tubs. The type of treatment prescribed will, of course, be based on a patient's needs: sedative hydrotherapy for the overactive patient and stimulating hydrotherapy for the underactive patient.

The nurse's contribution in this activity varies. In hospitals where special technicians perform procedures, the nurse's responsibility is limited. She notifies the department of the physician's prescription and prepares the patient psychologically. In a few isolated instances the nursing service is responsible for the supervision of the department, but not for actually performing the procedures.

In most hospitals, however, the nursing service performs a few

of the procedures in the actual ward unit. In such instances the nurse carries full responsibility for having complete knowledge of principles, techniques, and effects desired of the treatment. She is frequently called upon to teach other personnel, student nurses, and psychiatric aides. Moreover, in the absence of a therapist, the task of emphasizing the therapeutic aspects of the treatment to the patient is a most important function carried by the nurse. To the nurse falls the responsibility of preparing the patient psychologically by allaying his fears and encouraging him to cooperate. For example, the restriction of movement in an initial wet sheet treatment may be a fearsome situation for a new patient. Again, the force of water in the Scotch douche may seem a form of punishment to a withdrawn, underactive, depressed patient. The need to explain hydrotherapeutic measures before they are given is a point that cannot be overemphasized. In all instances the nurse is responsible for reporting to the therapist and physician the effects of the treatment.

EDUCATIONAL AND VOCATIONAL THERAPY. In many private institutions and in some others where facilities are well developed, educational therapy and vocational therapy are integrated into the total rehabilitation program. The nurse's function in these situations is a minor one. She is expected to know the objectives of the program, provide motivation for the patient, and encourage him over difficult situations. Moreover she sees to it that he reaches activities at the prescribed time and reports to the therapist and physician signs of improvement or of regression.

PSYCHOTHERAPY. The nurse's role here is of a supportive, understanding nature. She of necessity must develop a passive attitude in disturbing situations. She needs to understand that the patient is likely to be experiencing great emotional tension. Her attitudes and unspoken judgments must be carefully controlled. A mere inflection, to the patient in his hypersensitive stage, might do irreparable damage. A nurse in contact with a patient receiving psychotherapy has a position that requires the utmost in tact and resourcefulness. It is helpful if the nurse has an understanding of the stages through which the patient is working. This may be accomplished by close cooperation between the psychotherapist and the nurse.

Summary

The nurse's role in rehabilitation is, in the very beginning of the patient's hospital stay, to provide emotional security, to give the patient in the first difficult days a feeling of belonging. It is in these first contacts that a patient either feels that he is wanted and that "here is help" or that attitudes of doubt, distrust, and rebellion occur. It is truly up to the nurse to sell the program, not only to the patient, but to the family and friends. A successful plan without their cooperation is very difficult if not impossible.

It is up to the nurse to sense the patient's needs and to pass these observations along to the doctor and other members of the team. The nurse is likely to be able to see that first shadow of improvement which it is vitally important to the patient to have noticed. It is the nurse who is able to give that word of encouragement so desperately needed during the long, often difficult rehabilitation program.

The coordinating, supplementing, and interpreting of all activities are the nurse's duties too. Surely, occupational therapy need not stop because the occupational therapist must leave the patient. The nurse needs to and must assist in all activities; to do this, she first of all must see their value.

The nurse and all other members of the team must view the individual from as many angles as possible. We must not be like the blind men of Hindustan who argued among themselves over what an elephant was like. Each felt a different part and was convinced the small area he explored must be the shape of the beast. Many of us are prone to the same type of error. We need a broad, dynamic concept of rehabilitation. There needs to be active teamwork in its broadest meaning.

Our course is determined by the individual needs of the patient. It is guided by a free flow of ideas and the integration of knowledge from one field to another. It is only by this practice that a complete understanding of the patient's needs can be gained.

PSYCHIATRIC SENSE AND NONSENSE *

By CHARLES C. BURLINGAME, M.D.

These past years, especially the war years, have been significant in bringing psychiatric facts and fancies to the fore. After a century of ostracism, psychiatry has found itself accepted almost overnight in the home, in industry, in the schools, and in the community. Actually, it has come to be quite the fashion to have a psychoneurosis!

In spite of this sudden rise to fame and fortune, psychiatrists might do well to examine themselves carefully to make sure that they are headed in the right direction. As chairman of the Committee on Public Education of the American Psychiatric Association and as president and psychiatrist in chief of a psychiatric hospital, I constantly receive communications expressing views on psychiatric matters from individuals and groups in my own country and abroad. These spontaneous remarks encompass most of the prevailing views on psychiatric developments, from which one can hazard a fairly good forecast of probable things to come.

There are many favorable indications that great progress has been made, but I am also convinced that, in spite of surface indications, psychiatry is not necessarily assured of smooth going from now on. Rather, there are matters not entirely desirable which call for serious, immediate attention.

Paradoxically enough, the matters which are not entirely desirable may be related to the popularity which has come to psychiatry so suddenly and unexpectedly. There is real danger in letting this sudden rise to fame and fortune "go to one's head"!

Psychiatry was born out of the jails and almshouses and probably had a more ignoble birth than the other branches of medicine. Subsequently, the struggle to establish psychiatry as a scientific practice related to the rest of medicine has met with more obstacles than has that of the more prosaic, less dramatic specialties such as cardiology,

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pediatrics, or dermatology. In the not too distant past the psychiatric institution was separated from the life of the community. The psychiatrist was little more than a keeper of the keys who, if he did emerge from his walled abode, was looked on as someone who spoke a language different from others and spoke of things unrelated to society outside of the asylum.

Yet in the face of public rebuffs and an almost complete lack of monetary support, a relatively small group of psychiatrists and other earnest people have worked untiringly to learn more about mental illnesses. They have struggled to provide better care for psychiatric patients and to place psychiatry on a scientific medical basis.

It has been a hard struggle and a long one. Now, with the spotlight on psychiatry, the temptation is great to rush to the center of the stage; and this is the time that psychiatrists must avoid overplaying their part and, incidentally, suffering the consequences.

I am sure that all will concur when I say that it is psychiatric nonsense to claim that present-day psychiatry contains the cure for all the mental ills to which the human flesh is heir. It is psychiatric nonsense to claim that if psychiatry only had a chance a vast majority of psychiatric breakdowns could be prevented.

In answer to the sudden and flattering demands on psychiatric services, one might better become increasingly realistic and answer the question: "What is actually known of preventive psychiatry in the sense that the rest of the members of the medical profession, as well as the laity, use the term preventive medicine?" Largely through preventive medicine, the span of life in America has been lengthened twenty years within a single generation. What does psychiatry have to offer today that is at all comparable to that?

It is true that the psychiatrist has many impressions about what is good for the mental health of the human being. It is true that he entertains many hunches about what will alleviate psychiatric illnesses, which comprise the greatest of all public health problems. However, it is also true that, with comparatively few exceptions, he does not know the cause of so-called mental diseases. Most diagnostic terms are only descriptive of conditions and do not yet represent disease entities in the same sense that pneumonia, typhoid fever, and similar diagnostic terms represent disease entities.

For example, what is manic-depressive psychosis? What is its cause and how can it be prevented? What is dementia precox?

What is its cause and how can it be prevented? I doubt if the endless papers describing these conditions are getting at the fine point of establishing disease entities, and the establishment of disease entities must antedate any truly scientific exploration into the causes and prevention of mental diseases.

It is only during the past fifty years that the great scientific discoveries have been made in psychiatry, and all in all science is a plodding, painstaking process which must be accepted if psychiatry is to be established on an enduring basis.

There is the matter of the forms of treatment. Therapeutically, psychiatry has made great advances since I first entered the field thirty-eight years ago. I have seen fads of all kinds come and go. I have seen the intestines removed and thrown away. I have lived through this era and that era of enthusiasm about one form of therapy or another form of therapy, and I have seen them discarded.

Consider the present-day shock therapy. Only a stupid person would decry shock therapy as an instrument in helping the mentally ill, but nevertheless one should not condone the use of shock therapy for everything from an ingrowing toenail to baldness. The seemingly miraculous results obtained in the presence of shock therapy should not cause one to lose the wits with which one was born or the knowledge one has acquired in the past thirty or forty years. To proceed as if shock therapy, any more than any other psychiatric technic, can usurp the place of all other therapies is psychiatric nonsense.

Also, lobotomies or leukotomies are coming forward. Because of their grave danger and high demands on the resources at the command of the psychiatrist, they probably are destined never to be a runaway; but again, to assume that the surgical procedure of the lobotomy replaces the usefulness of all other therapeutic technics and amassed psychiatric knowledge would be psychiatric nonsense.

Psychiatrists talk at great length about psychotherapy, which may convey a great deal to their own initiated group, but in the minds of the general public the term is more or less mixed up with metaphysics and the occult.

It is my own personal belief that psychotherapy, regardless of the form it assumes (and it does assume many forms), is essentially personal tutoring. Further, I believe that sound physical medicine and psychotherapy in the form of personal tutoring occupy the front

ranks in the help which may be offered to the mentally ill. Other therapies are important adjuncts, but psychotherapy, in the form of personal tutoring, and sound physical medicine are a reliable basis for all present-day psychiatric treatment aimed at restoring psychiatric patients to society.

A patient can be taken into a psychiatric institution and his psychiatric disorder can be alleviated by protecting him from the sin and suffering in the outside world and applying any one or several of the other psychiatric treatments. But unless that patient is better equipped when he leaves the institution to cope with his problems outside the institution, treatment has been a failure. Nine times in ten the factors in his breakdown were concerned with his inability to cope with life as it exists outside the institution, and the defects within persons which make them unable to cope with life are as varied as human nature itself.

If a patient is ever to fulfill his destiny as a member of society, he must be trained to develop and to use his mental and physical resources in the world as it exists outside the mental hospital. If he is able merely to adapt himself to life inside the mental hospital, treatment has been unsuccessful. Psychiatric patients must be examined from the point of view of the human mind and the human body and must be put in the best possible condition to meet life. In a word—they must be re-educated for living.

In the past years the psychiatrist has expended great kindness on the patients in mental hospitals, but let past procedures be examined to see if, with all this kindness, he has not expended all too little intelligence.

I urge a period of self-analysis to see if the procedures used have not in a large measure been a desocializing influence, tending to train patients away from the methods and practices of society outside of institutions.

For example, how many patients have been making baskets, weaving rugs, and polishing the floors in the hospital? How many of those same patients will make baskets, weave rugs, or polish floors in their communities if the psychiatrist succeeds in sending them home?

To the extent that patients are exposed to any procedures foreign to their lives outside of the hospital, one may be guilty of doubtful practice. Indeed, in some instances it might well be asked if one is

not unconsciously institutionalizing the patients; and institutionalizing the patients is extremely easy, even while one is all kindly feelings and charitable intent. But is this good treatment?

Psychotherapy in the form of personal tutoring is education in its broadest sense and has evolved in the United States into a technic known as re-educational therapy, with decidedly practical applications to normal living.

Of what does this re-education consist? To answer that question, I am going to consider man's psychologic life under four practical headings: (1) his vocational life, (2) his avocational life, (3) his social and recreational life, and (4) his physical self.

VOCATION. First of all, man has a need to be of some use to others. He has a psychologic need to feel reasonably justified for taking up space on the good earth. The housewife who keeps a good home, the secretary who serves her employer, the truck driver, the electrician, the doctor—each is fulfilling a useful and responsible place in society. This is the vocational aspect of life.

AVOCATION. The concept of avocations is that they are "secondary vocations." Most persons are not fortunate enough to do for a living that at which they would like to play, so they must have avocations or hobbies to satisfy their urge to be usefully interested in life. Avocations are those things which man does by himself as a hobby.

SOCIAL AND RECREATIONAL. Third, man is a social animal with a need to play and enjoy the lighter side of life. He needs to do things with other people. He needs their company and he needs to know how to get along with them.

PHYSICAL. Of course, man must be physically well and physically fit. He must have good habits of taking care of the human body, which is the vehicle of his mind. It has often been said that a healthy body is necessary for a healthy mind.

To recapitulate, a human being sits psychologically on a four-legged chair. One leg of that chair is his vocation; another leg is his avocation; the third leg of that chair is the social and recreational leg, and the fourth is his physical self. If his chair has four solid legs, he is destined to sit comfortably and securely throughout life. If one leg is too short, or missing, he may well find a reasonable

amount of security in his particular chair of life. If two of the legs are defective, he will probably be uncomfortable; and some people seem to have all four legs of different lengths, or some entirely absent, which leaves them precariously balanced, with the result that they fall.

For the moment I shall put aside theoretic thinking in the field of psychiatry, dispense with wishful thinking, and get down to the known facts. Let psychiatrists make sure that these facts are used as the basis for the things which are still in doubt.

I have already intimated that one must first learn the physical condition of every psychiatric patient. At the Institute of Living in Hartford, Connecticut, with which I have the honor to be associated, more than a thousand new patients were received in the past year. As a routine, every patient has a complete physical examination, roentgenograms of the head, the chest, the heart, and the lungs. Every patient has an extensive examination of the eye, the ear, the nose, and the throat, the blood and the body fluids, electroencephalograms, electrocardiograms, and all the neurologic and other physiologic examinations and tests. To the extent of present-day diagnostic methods, no effort is spared to determine the physical condition of the patient at the time he is received, regardless of what the so-called psychiatric diagnosis may be. In addition, every patient is routinely exposed to a battery of psychologic tests.

It is interesting to note that two thirds of all the patients admitted have some demonstrable physical irregularity. At times the connection between the physical irregularity and the mental condition is quite obvious, but in a large percentage of the cases the connection is a matter of present and future research.

It is interesting to note that, among 1,000 cases, thorough examinations indicated eight brain tumors, which diagnoses were confirmed on the operating table. The psychiatric diagnoses of these patients had been psychoneurosis, dementia precox, reactive depressions, and manic-depressive psychosis.

The accumulation of thousands of careful physical examinations on thousands of mental patients provides a fruitful field for research in the future, but I shall resist the temptation to guess what these studies may reveal as to the causes of mental diseases and their possible treatment. I am sure that these studies of the human body and the human mind will eventually result in the cessation of talk

about mental disease and physical disease as two separate things but will lead to the inclusion of both under the term *disease.* During the thirty-eight years I have been in the field of psychiatry, I have come to the conclusion that there is no such thing as "mental" disease in the sense in which the term has been used for several generations.

If one has a carbuncle on the back of the neck, one will refer to it as a physical disease, but is one's psychologic side changed? Of course it is. Is the personality of the dyspeptic changed? Of course. The change is so well known that the distorted personality of the dyspeptic is a common subject in the funny papers. Is the personality of a patient with typhoid changed in the midst of his delirium? Of course it is. The most psychotic patient I have ever seen was in the delirium of typhoid fever.

When I entered the field of psychiatry, dementia paralytica or softening of the brain was accepted as a "mental" disease. Then I had the pleasure of looking at the original slides in which the spirochete of syphilis was discovered in the cortex of the brain of a patient with dementia paralytica, revealing that this entity is syphilis of the brain. Is that a mental disease, or is it a physical disease?

There is a large group of patients with involutional melancholia. It is now known that in involutional melancholia there is an endocrine imbalance, the correction of which is the most immediate feature in the cure. Is involutional melancholia a mental disease or a physical disease?

I have seen dementia precox occurring in patients with pellagra. With the cure of pellagra, the dementia precox disappeared. Was that a mental disease or a physical disease? I have seen dementia precox in army patients who had long had malaria. With the cure of the malaria, the dementia precox disappeared. Was that a mental disease, or was it a physical disease?

Think of man as a whole. Think of his physical and mental incapacities as diseases, not separately as physical diseases or mental diseases. I fully believe that any other type of thinking will be referred to in the future as pure psychiatric nonsense.

However, there is a long gap between present-day knowledge and the knowledge of a decade hence. Within that period, there are patients to be treated.

I doubt if merely talking with a patient, using so-called psychotherapy regarding hidden experiences which occurred to him at two

or three years of age, is a practical solution to the problems of the hundreds of thousands of psychiatric patients. More is known about the course of the so-called mental diseases than about their causes. Happily, more is known about what can be done for so-called mental disease than about the exact nature of the disease.

A person may be born with a curved spine or weak eyes. Physicians can examine his spine and do a great deal to strengthen it. What is more, that person can be taught to live a useful and successful life with that handicap. By study of a patient with weak eyes, the defect can sometimes be corrected with glasses and that person can be taught to be a useful member of society. It is also true that one can study psychiatric patients as to their vocational past and their vocational possibilities and train them along vocational lines, so that they can live successfully in line with their vocational capacities and limitations. One can study their avocational past and their avocational possibilities and help them to develop these potentialities. One can study their social and recreational past and train them along these lines to enable them to live successfully according to their capabilities in a social and recreational way. And one can certainly study their physical selves and aid in their development so that they can live according to their physical capabilities. These things can be done; if one does them, it makes psychiatric sense and not psychiatric nonsense.

If psychiatrists will aid in the development of their patients vocationally and avocationally, socially, recreationally, and physically, theirs will be a practical approach to the cure of psychiatric disabilities. If that is used as a basis for the attack on psychiatric diseases, one may have a clear conscience if one wishes to add any of the purely theoretic approaches. On the other hand, the psychiatrist is failing in his responsibility if he neglects proved facts and follows exclusively any of those schools of psychiatric thought which are based primarily on hypotheses.

There is no such thing as a scientific psychiatric approach which does not have a solid demonstrable fact as its point of departure. Theories and hypotheses are stimuli for research, but theories and hypotheses based on other theories and other hypotheses are not scientific facts. If the psychiatrist is lost in a morass of theory, there is great danger that his ideas of scientific advances will drift into the sphere of wishful thinking and fairy tales. A psychiatrist must first

of all be a good physician with a complete knowledge of the human body and must use his knowledge in treating his patients. Second, he must be a bit of a sociologist who is a constant student of the milieu in which his patient has lived and must live in the future. Third, he must be a psychologist who understands the workings of the human mind. Fourth, he must be a specialized type of educator and fifth, he must be a vocational guidance expert. Any psychiatrist who does not fulfill all five of these intellectual disciplines is destined to fall short of his possibilities.

Most important of all, the psychiatrist must express himself in terms which can be understood by every medical practitioner, and psychiatry must be made an integral part of medicine. It does not take a great mind to make simple things complicated, but it takes a very great mind to make complicated things simple. Let psychiatrists, then, distinguish between psychiatric sense and psychiatric nonsense and bring simple, hard-headed sense into this field, which contains the greatest public health problem in the world today.

RECOVERY, INC., A PROJECT FOR REHABILITATING POSTPSYCHOTIC AND LONG-TERM PSYCHONEUROTIC PATIENTS *

By ABRAHAM A. LOW, M.D.

Successful rehabilitation of the postpsychotic and the long-term psychoneurotic patient has been hampered by the excessive length of time required for individual psychotherapy. If each patient is to be the recipient of from thirty to several hundred hours of treatment, the result will be that the psychiatrist lacks the requisite time and the patient the necessary means. As will be demonstrated in the present contribution, the self-help techniques in psychiatric aftercare evolved by Recovery, Inc. during the past eleven years permit the psychiatrist to provide for his patients ample treatment time at moderate expense.

Recovery, Inc. was founded November 7, 1937, by thirty ex-patients who regained their health after receiving shock treatments and/or other therapies at the Psychiatric Institute of the University of Illinois Medical School, the predecessor of the present Psychiatry Department of the Illinois Neuropsychiatric Institute. The author was at the time the assistant director of the Institute. Between 1937 and 1940 the organization limited its services to the patients admitted to the Psychiatric Institute. In the fall of 1940 it expanded its work to include the psychoneurotic patients of the outpatient department. In September, 1941, the group severed its connection with the University of Illinois Medical School and established headquarters of its own in the Chicago Loop district, where it is now located. In the years after 1942 the bulk of its membership was recruited from the author's private practice. As is evident from this brief description, Recovery, Inc. has had the opportunity to try out its techniques (1) with an intramural patient population, (2) with an outpatient group, and (3) with private patients. The

* Several passages embodied in the present article are quoted, with the publisher's permission, from a previous paper by the author, entitled "The Combined System of Group Psychotherapy and Self-Help as Practiced by Recovery, Inc.," *Sociometry*, Vol. 8, Aug.-Nov., 1945, published by Beacon House, Beacon, New York.

object of the organization, apart from its tendency to save time for the physician and money for the patient, is to help prevent recurrences in mental disease and to forestall chronicity in psychoneurotic conditions. Its techniques place the emphasis on self-help.

The "Residual Symptom" of the Postpsychotic Patient

After leaving the hospital the mental patient is supposed to be restored to health. This is true in most instances if by mental health is meant the absence of delusions and hallucinations, of violent impulsiveness and indifference to group standards. But on returning home the patient still suffers from restlessness, tenseness, and preoccupation. His inability to relax is aggravated by the sense of being stigmatized. Most returned patients are so suspicious of being watched or mistrusted that even simple inquiries like "How do you feel?" or "How are you today?" are likely to cause irritation. These innocent questions may suggest to the patient that the reality of his recovery is doubted. Feeling stigmatized, the patient becomes self-conscious and introspective. On a given night he might have difficulty falling asleep. This is apt to alarm him. The alarm increases the difficulty of sleeping. Then more alarm, more sleeplessness, and more alarm yet. A vicious cycle is thus set going which may keep the patient from properly resting night after night. Other vicious cycles may soon establish themselves. The patient notices a sense of fatigue which in itself may be as insignificant as any sensation of fatigue experienced by the average person. But, feeling stigmatized, he correlates his tiredness with the possibility of a relapse, and the more he dreads the relapse the more intense becomes his fatigue; the heavier the fatigue, the more haunting the fear of the relapse. One patient had a nocturnal itch after returning home, another complained of a twitch in one arm, a third felt a hair on the tongue. Experiences of this kind are distressing enough to conjure up the vision of an impending relapse. The experiences become far more terrifying when the patient observes, for instance, that the arm suddenly begins to shake in automatic motion or when "awful flashes" shoot across the eye. Patients reported an "electric buzz running through the muscles," that "the tongue lay stiff in the mouth," that "my own voice sounded strange," that "the ear felt pushed in," that "I can't seem to hear myself when I speak."

Palpitations, numbness, head or chest pressures, dizziness, difficulty of concentration, dimness of vision, air-hunger, headaches, nausea, and scores of other disturbing sensations were reported by numerous patients. Observations of this sort may give rise to the vicious cycle which has the familiar character of the symptom increasing the fear and the fear intensifying and perpetuating the symptom. While there are no statistics to substantiate the claim, it is fair to assume that many recurrences of mental ailment are the direct result of these "residual symptoms" which, fanned by the fury of the vicious cycle, produce anxieties and panics which finally necessitate the much dreaded recommitment. Recovery, Inc. insists that the patient, prior to leaving the hospital, attend group psychotherapy classes in which he is given adequate instruction in how to face the threat of the residual symptom and the pressure of stigmatization. At the same time, the members of the family are urged to attend discussion courses in which similar instruction is offered. In this manner the predischarge care prepares for the aftercare effort.

The Defeatism of the Chronic Psychoneurotic Patient

Most residual symptoms from which the returned mental patient is likely to suffer are similar to or identical with the common complaints voiced by psychoneurotic patients, hence the possibility of treating both groups by the same method. The psychoneurotic patients admitted to Recovery, Inc. belong in the category of chronic, protracted cases mainly. Patients with symptoms of a few months' duration are rarities in the ranks of the group. Most members have a record of from two to twenty years of suffering. These "experienced sufferers" have made the rounds of physicians and clinics and were assured on numerous occasions, explicitly or by implication, that some therapeutic measure would cure them. The assurance never materialized, with the result that they no longer believe a cure possible. They know, however, that some or most of the past therapies had a transient, palliative effect. The palpitations were milder after a reassuring talk; the dizziness yielded to a sedative. Hence, they treasure the "pep-talk" or the prescription. In order to secure these elusive aids they must complain; they must convince the physician that they "really" suffer, that their pains are not imaginary, that they can "positively not stand" their fatigue. To

get a hearing from the doctor is all the more important because at home their complaints are likely to be met with impatience or ridicule. Complaining, then, becomes a vital part of their daily routine. In the course of years they develop the consummate art of the "expert complainer." What these chronic patients crave is a sympathetic ear which, after years of griping, they can no longer secure from their relatives and friends. They delight in a lengthy discussion of their fears and frustrations. Their ideal is to be explored, sounded, and probed. Essentially they have decided that their case is beyond repair. What they expect is a hearing, perhaps some temporary relief, but not a final cure. The "chronicity" of this group has little to do with the nature of the symptoms, with diagnosis or etiology; it is self-appointed defeatism.

Since Recovery Inc. places the emphasis on the self-help action of the patients, it must ignore investigations and explorations which are not within the province of inexperienced lay persons. Complexes, childhood memories, dream experiences, and subconscious thought play little part in the class interviews conducted by the physician and are entirely eliminated from the self-help effort carried on by the patients. The psychoneurotic individual is considered a person who for some reason developed disturbing symptoms leading to ill-controlled behavior. The symptoms are in the nature of threatening sensations, "intolerable" feelings, "uncontrollable" impulses, and obsessive "unbearable" thoughts. The very vocabulary with its frenzied emphasis on the "killing" headache, the dizziness that "drives me frantic," the fatigue that "is beyond human endurance" is ominously expressive of defeatism. The first step in the psychotherapeutic management of these chronic patients must be to convince them that the sensation can be endured, the impulse controlled, the obsession checked. Unfortunately, the physician is far from convincing. His attempt to "sell" the idea of mental health arouses the "sales resistance" of the patient. "The physician doesn't dare tell me the truth," muses the patient. "It would be against his ethics to declare me incurable." The resistance is easily overcome in the group interview. The fellow sufferer who explains how he "licked" his frightful palpitations after years of invalidism cannot possibly be suspected of trying to sell something. That "colleague" is convincing. He convinces the novice that chronic conditions are not hopeless.

The Patients Meet on Three Days Every Week

On three separate days each week the patients take part in group discussions, either as panel members or listeners. On Wednesday, family gatherings are held in private homes in the various neighborhoods of Chicago. The patients are subdivided into five neighborhood groups, each comprising from ten to twenty families. Two such family groups function on the North Side, two on the South Side, and one on the West Side of the city. On the occasion of the family meetings panels of three or four experienced members discuss a chapter of the author's three volumes on self-directed aftercare or an article from the now discontinued *Recovery Journal.* The theme is centered on the topic of symptoms and the proper means of conquering them. The physician is not present at the family gatherings, although he reserves the right to attend occasionally to check on the effectiveness of the procedure. Reports are currently conveyed to him by the panel leaders. Tuesday evening is devoted to a group psychotherapy class, conducted by the physician. Saturday afternoon, a public meeting takes place at Recovery headquarters. It is attended by the patients and their relatives and friends. The first half-hour is given over to a panel discussion similar to that held at the Wednesday home gatherings. In the second half the physician delivers an address in which he sums up the conclusions reached by the panel, approving or correcting their statements. The panel members are led by a panel leader.

Treating the "Setback"

Patients are required to attend classes and meetings for at least six months. Monthly charges are made for class attendance, and yearly dues are charged for Recovery membership. The average patient experiences a considerable improvement in the first or second week of participation in the program. But the improvement is, as a rule, as short-lived as was the relief which the patient used to gain from the visits to clinics and doctors' offices. No meetings are held on four days of the week. During these days the novice is apt to suffer a "setback." He is again tortured by "that awful fatigue" or has been unable "to sleep a wink for three nights in succession," or the fear of doing harm to the baby reappears after it was gone

for a short while. Every patient is warned to be on guard against the unavoidable setback. He is cautioned to contact a veteran Recovery member immediately after the symptom has reappeared. The assurance offered by the veteran is in accord with the language used by the physician, and the interpretations given to the novice coincide with those used in the physician's classes and in his writings. New members are assigned to veterans whom they may call in distress. The veteran functions in the capacity of the physician's "aide." The contact is generally made by telephone but may be by a personal visit to the aide's home. If the result is not satisfactory, the novice is permitted to call on the leader of his local panel. If this is ineffective, he may contact the chairman of the organization, who serves as deputy to the physician. Finally he may call the physician. The effectiveness of the scheme is evidenced by the fact that few instances are recorded in which the physician was called by novices.

The Symptomatic Idiom

If the patients are to help and teach one another, they must be instructed to use a language which is not confusing. This is particularly important because language, if used glibly, tends to be alarmist and defeatist. By dint of its defeatist insinuations, language frequently engenders tenseness which reinforces and perpetuates symptoms. To avoid the fatalistic implications of the language used by the patient the physician must supply a terminology of his own in matters of health. There are many languages. Features and gestures speak. So do symptoms. Their language is a one-word idiom: DANGER. This is called the "symptomatic idiom." Accepting the suggestions of the symptomatic idiom, the patient considers the violent palpitations as presaging sudden death. The pressure in the head is viewed as due to a brain tumor. The tenseness is experienced as so "terrific" that the patient fears he is going to "burst." His fatigue does not let up "one single minute," and "how long can the body stand that?" In these instances, the implications of the symptomatic idiom are those of an impending *physical collapse.* If phobias, compulsions, and obsessions dominate the symptomatic scene, the resulting fear is that of the *mental collapse.* After months and years of sustained suffering, the twin fears of physical and mental collapse may recede, giving way to appre-

hensions about the impossibility of a final cure. This is the fear of the *permanent handicap*. The three basic fears of the physical collapse, mental collapse, and permanent handicap are variations of the danger theme suggested by the symptomatic idiom.

The Temperamental Lingo

Another source of defeatism is temper. The patients are taught that temper has two divisions. The one comes into play when I persuade myself that a person has done me wrong. As a result I become angry. This is called the *angry or aggressive temper*, which appears in various shades and nuances: resentment, impatience, indignation, disgust, hatred, etc. The other variety of temper is brought into action whenever I feel that I am wrong. This gives rise to moral, ethical, and esthetic fears or to the fear of being a failure in pragmatic pursuits. I am afraid that I sinned, failed, blundered, in short, that I defaulted on a moral, ethical, or esthetic standard or on the standard of average efficiency. This is called the *fearful or retreating temper* and may express itself in many different qualities and intensities: discouragement, preoccupation, embarrassment, worry, sense of shame, feeling of inadequacy, hopelessness, despair, etc. The fearful temper is likely to lead either to a feeling of personal inferiority or to the sentiment of group stigmatization. Whether it be of the angry or fearful description, temper reinforces and intensifies the symptom which, in its turn, increases the temperamental reaction. In this manner, a vicious cycle is established between temper and symptom. The temperamental reaction is kept alive mainly by the unsympathetic and unthinking attitude of relatives. By means of coarse statements or subtle innuendo they provoke loud explosions or silent agonies on the part of the patient. They tell him to use his will power, implying that he makes no effort to get well. With this, they indict him as a weakling, worse yet, as purposely shamming disease. They tell him to snap out of it, indicating that the symptoms are so easy to deal with that a mere snap would shake them out of existence. Other insinuations frequently leveled against the psychoneurotic or former mental patient are equally disheartening. Complaining of fatigue he is told not to be lazy; mentioning his "awful palpitations," he is admonished to be a man. The net result of this concerted environmental assault is that

the patient is continually angry at his detractors and, gradually accepting their insinuations, becomes ashamed and fearful of himself.

In telling the patient that wrong was done to him or that he is wrong, his temper speaks to him. The language which it uses is called the *temperamental lingo.* Its vocabulary is limited to the terms *right* and *wrong.* Unless the patient learns to ignore the threats, warnings, and incitements of the temperamental lingo, he will be the victim of angry outbursts and fearful anticipations. His tenseness will be maintained and intensified; new symptoms will be precipitated and old ones fortified. Temper is most dangerous when it plays on the symptom itself. By labeling sensations as "intolerable," feelings as "terrible," impulses as "uncontrollable," the lingo discourages the patient from facing, tolerating, and controlling the reaction. All a patient has to do is to call a crying reaction by the name of "crying spell," and no effort will be made to check the burst of tears. The word *spell* suggests uncontrollability. Make the patient substitute *crying habit* for *crying spell* and the impossibility of stemming the flood at least will not be taken for granted. Similarly, if the patient raves about the "splitting" headache, the dizziness that "drives me mad," the pressure that "I can't stand any longer," the fatalism of diction is bound to breed a despondency of mood. In order to prevent the temperamental response, the patient must be trained to ignore the whisperings of his temperamental lingo.

The "Recovery Language"

The combined effects of symptomatic idiom and temperamental lingo are checkmated if the patient is made to use the physician's language only. The members of the Association call it proudly the "Recovery language." Its vocabulary is limited in the main to two words: *sabotage* and *authority.* The authority of the physician is sabotaged if the patient presumes to make a diagnostic, therapeutic, or prognostic statement. The verbiage of the temperamental lingo *(unbearable, intolerable, uncontrollable)* constitutes sabotage because of the assumption that the condition is of a serious nature, which is a diagnosis; or that it is difficult to repair, which is a prognosis. It is a crass example of sabotage if the claim is advanced that, "My headache is there the very minute I wake up. I didn't have time to think about it. It came before I even had a chance to become emo-

tional. How can that be nervous?" A statement of this kind throws a serious doubt on the validity of the physician's diagnosis and sabotages his authority. Likewise, it is a case of self-diagnosing and consequently sabotage to view palpitations as a sign of a heart ailment, head pressure as meaning brain tumor, sustained fatigue as leading to physical exhaustion. Once the physician has made the diagnosis of a psychoneurotic or postpsychotic condition, the patient is no longer permitted to indulge in the pastime of self-diagnosing. If he does he is classed as a saboteur. Patients are required to lose their major symptoms after two months of Recovery membership and class attendance. If after the two-month period the handicap persists in its original intensity, the indication is that sabotage is still in action. The patient still listens to the suggestions of the symptomatic idiom, fearing impending collapse and permanent handicap. Or, he gives ear to the verbal vagaries of the temperamental lingo, feeling helpless in the face of suffering. Clinging to his own mode of thinking, he sabotages the physician's effort.

Contrary to expectation, it is comforting to the patient to be branded a saboteur. Considering himself as such, he knows that he has "not yet" learned to avoid resisting the physician. The "not yet" is reassuring. It suggests that in time he will learn. The patients tell one another to wait until they get well. They warn one another against impatience. The most effective slogan handed down from veteran to novice is, "Wait till you will learn to give up sabotaging."

The "Spotting Technique"

If the patient is to check his sabotaging propensities, he must be trained to "spot" the inconsistencies and fallacies of his own language, whether it is merely conceived in silent thought or given formulation in vocal speech. To this end, a system of "spotting techniques" was evolved by means of which the members learn to reject the suggestions of the symptomatic idiom and the temperamental lingo whenever a symptom or a temperamental reaction occurs. Space does not permit a detailed description here of the techniques in question. The involved principles are incorporated in the now rather extensive literature which the organization has published during the past ten years, and a cursory account would be insufficient and misleading.

Social Activities

The social calendar of the organization is remarkably crowded. The activities are largely spontaneous, little supervised. Practically all events, be they group psychotherapy classes, public meetings, or family gatherings, are somehow linked to sociability. After a group psychotherapy class the patients form small groups heading for the nearest drugstore or restaurant where they rehash the theme discussed in class or chat about private affairs. The most stimulating social event is the "kaffeeklatsch" following immediately upon the Saturday afternoon public meeting. After the panel and the physician have finished their discussions, the assembly hall is speedily converted into a sort of lounge. The patients, relatives, and friends seat themselves around small tables and are treated to coffee and cake. Mothers and fathers then exchange views about the progress of their still suffering or already recovering offspring. The patients join the chat, and the atmosphere is one of mutual encouragement, gratitude, and hopefulness. The "kaffeeklatsch" may last an hour or longer. The physician moves from table to table, engaging in brief conversations or listening to the stories and views presented by the members. This informal mingling with patients and relatives provides the physician with information which he could hardly obtain otherwise. The men and women speaking to him are spontaneous, divorced from the official and cramping situation of the interview carried on in the ordinary examining room. Mrs. Jones reports an incident which she observed in Mrs. Smith's home on the occasion of the last family gathering. The account is unreflective, reportorial, descriptive. These casual chats with the members are an invaluable means of acquainting the physician with the most personal details of his patients' home life.

The family gatherings are similarly patterned. A panel discussion of about thirty minutes is followed by a modest repast furnished by the family in whose home the meeting is held. The physician seldom visits the family panels but is kept currently informed by the panel leaders about what transpires about adjustment or maladjustment of the patients and about the quality of home life prevailing in the particular family. The panel leaders meet with the physician once a month to receive special training in the matter of conducting the panels. This is again an occasion when a vast mass of information

is conveyed to the physician about the home life of the patients. It need hardly be stressed that the type and quality of information which the physician is thus enabled to collect is vastly superior to that obtained in his examining room while interviewing and questioning patients or relatives.

The members seem to have an almost unquenchable thirst for social contacts. They visit one another in their homes; they go together to shows and concerts, meet for lunches, for short trips, for joint visits to museums or parks, or for plain walks. Some groups have regular schedules for bowling and barn dancing. Occasionally patients get together for joint hiking and swimming. The families of one North Side and one South Side group formed sewing circles. Consciously or unconsciously, the trend is to break through the dismal isolation and loneliness which have always been the blight of neurotic or postpsychotic existence. The patients state explicitly that formerly they merely existed, now they live again. Formerly they were lonely individuals, now they are thoroughly integrated with the rich, pulsating life of a closely knit group.

A happy outlet for this burning desire for sociability is afforded by the daily gatherings which take place at Recovery headquarters. A number of veterans, housewives mainly, volunteer each to spend one afternoon a week in the Recovery office. Patients or relatives working in the Loop district drop in, partake of simple refreshments, and spend time chatting or asking advice or seeking reassurance for disturbing symptoms. The physician's office is two blocks distant. New patients are asked to visit the Recovery office immediately after the termination of the initial examination. There they are met by the other patients and given information about the work of the organization. Panics, anxieties, and apprehensions are easily dispelled or soothed by the calming influence of meeting other patients who have suffered similar disturbances but now present the picture of good health.

Membership, Finances, Administration

Membership is open to any psychoneurotic or former mental patient. In June, 1948, the membership stood at 395. About 75 per cent of the total has been secured from the author's private clientele. The organization is financed by membership fees, dona-

tions, proceeds from the sale of Recovery literature, and collections at meetings. The organization is almost but not quite self-sustaining, the yearly deficit being met by the author.

In April, 1948, the organization moved to larger quarters. With a considerably increased rental and the necessity for new furniture and office equipment it was deemed wise to create a guarantee fund, and the members responded promptly and generously to an appeal for contributions.

The affairs of the organization are conducted by a board of three directors, all ex-patients. The president of the organization is chairman of the board of directors. Serving with this officer are a vice-president, a secretary, a treasurer, and six councilors. The author does not hold office, but functions as the medical director. An ex-patient is the editor of the *Recovery News.* Another ex-patient holds the position of executive secretary, doing all the routine work including dictation and typing, and is the only salaried employe.

Recovery Literature

Between 1938 and 1941 the organization published a bimonthly magazine, *Lost and Found.* The author was the editor and contributed the bulk of the articles. The pages of the magazine were devoted mainly to a thorough discussion of the influence of domestic temper on the fortunes of the patients. In 1943 this material was issued in book form * to serve as the standard textbook for patients and relatives.

From June, 1946, to June, 1947, the *Recovery Journal* was published. This was succeeded by a phototyped news sheet, the *Recovery News,* appearing eight times a year.

Recovery Branches Outside Chicago

Two branches of Recovery, Inc. are functioning outside the State of Illinois, one in Muscatine, Iowa, and another in Brighton, Michigan. Both owe their existence to the initiative of local ex-patients who, hearing of the work done in Chicago, conceived the idea of duplicating the effort in their locality. The Muscatine branch has been functioning since September, 1946, and the one in Brighton

* *The Techniques of Self-Help in Psychiatric After-Care.*

since July, 1947. The patients meet regularly in their homes, read the Recovery literature, cite examples from their own experience, and conduct panel discussions which are modeled after the pattern established in Chicago. The branches are visited by officers of the Chicago organization at intervals of about six months, and the leaders of the branches, in turn, come to Chicago to attend meetings and to perfect themselves in the techniques of panel leadership.

Results

It was stated that the objectives of the organization are (1) to help reduce the incidence of relapses in mental ailment and to prevent chronicity in psychoneurotic conditions and (2) to save time for the physician and expense for the patient. It would be easy to furnish imposing tables detailing percentages of improvements and failures. Tabulations of this kind, posing as objective statements, are usually nothing but subjective opinions, no matter how heavily they are buttressed by charts and graphs. They are particularly objectionable if compiled without the benefit of a well-organized long-range follow-up investigation. Since the latter was not available, no computation has been attempted. Nevertheless, reasonably valid conclusions as to the therapeutic effectiveness of the system can be drawn from the very nature and structure of the organization. The patients and relatives know one another. If relapses or continued chronicity were frequent occurrences, the membership would inevitably become discouraged and lose confidence. An unfortunate event which took place in October, 1947, illustrates the point with striking force. A well-known member of the group relapsed into a depression and one morning ran into the path of a speeding train. It was not clear whether the fatal incident was suicide or accident. Nevertheless, something in the nature of demoralization swept the organization. Several of the ex-patients developed severe reactions. One of them had to be hospitalized. The fact that this was the only instance of suicide, if such it was, in a period of eleven years during which many hundreds of manic-depressive patients had joined as active members ought to be considered as testimony to the therapeutic efficiency of the system. This system would rapidly disintegrate if it failed to accomplish its therapeutic objectives. Statistical evidence does not seem required to sustain its claims.

Statistical figures, however, are available in support of the organization's second objective, i.e., its endeavor to effect substantial economies in the physician's time and the patient's expense. Because the patients are disciplined, there is little quibbling and arguing in the physician's office, which means that the so-called "resistance" to his explanations and directions is reduced to a minimum. This alone allows an impressive saving in time. Another time-saving factor is the massive instruction given the patients in classes and meetings and the insistence on continual study of the physician's writings. With resistance restricted and the patient coming to the office reasonably well instructed, the private interview can be terminated in a surprisingly short time. As a general rule, the author manages to see from four to five patients during one hour of his office time. Accordingly the charges for the brief visit can be held to a moderate figure. In addition, the intensive class training and the equally intensive patient-to-patient contact make it possible to achieve improvements after a relatively short period of treatment. The total charges are thus lowered considerably. All patients are required to visit the physician's office for six consecutive months after the initial examination. They are seen once a week during the first month and once in two weeks in the second month. During the third through the sixth month, the patients are seen once every four weeks if symptoms and difficulties are significantly ameliorated, but the two-week schedule continues if improvement lags. The average number of visits in 1947 was 11.9 per patient in a six-month period. The maximum was 23 visits, the minimum was 5, and the median was 12.

PART IV

VOCATIONAL AND SOCIAL REHABILITATION

COMMUNITY WORKSHOPS OF RHODE ISLAND, INC.

By Iris W. Booth

The Community Workshops of Rhode Island, Inc., formerly known as the Bureau for the Handicapped, was established in 1929 and incorporated in 1930 "for the purpose of coordinating and conducting activities for handicapped people." The incorporation amalgamated a number of independent services to furnish handicapped people (including the blind) in and around Providence with sheltered shop service, occupational therapy in the home, and help in job placement. Since that time the scope of services offered has been enlarged. The program for the blind has been dropped.

Community Workshops offers the following general services, mainly to the physically handicapped: case work and guidance, occupational therapy, training, sheltered work, and a differentiated service to the homebound.

Case Work and Guidance

All clients of the Workshops are first seen by the social worker, who secures and evaluates medical, social, and vocational information. In successive interviews, worker and patient make plans for either occupational therapy, training, guidance, placement, sheltered work, or services to homebound patients. The social worker follows the patient's progress and is available for consultation and help to all patients and for consultation service to other agencies.

Occupational Therapy

In the Occupational Therapy Shop, guided activity is used to help restore or improve joint function, improve muscle strength, improve coordination, retrain skills, establish work tolerance, and help overcome many other types of disabilities. Crutch walkers are taught to use stairs and buses, to cross streets, etc. Amputees are helped to adjust to and to learn to use the prosthesis efficiently. All

treatment is aimed at helping the disabled person become as self-sufficient as possible in preparation for return to school, job training, or job placement. Registered occupational therapists working under doctors' prescriptions supervise all treatment. Community Workshops has also supplied occupational therapy service by contract to clients of the Veterans Administration Medical Center in Rhode Island and to the State Department of Rehabilitation.

Training

JEWELRY TRAINING SHOP. This shop was set up in 1946 and sponsored by the New England Manufacturing Jewelers' Association. It was started as a project for veterans, and to date mainly Public Law No. 16 veterans of the second World War have been eligible and accepted. Training in general bench work, soldering, polishing, and finishing is offered under a skilled instructor. As this shop is approved as a trade school, it is so conducted. The course is for 520 hours and serves as a stepping stone to further job training in industry. Its success in serving veterans has led to the hope of its continuance for all disabled persons. Forty-one veterans have been accepted and twenty-five placed.

Training and Sheltered Work

PREINDUSTRIAL SHOP. This shop was established in 1934 to train people for industry. A supervised program of work testing, training, and retraining for industry is available under conditions as nearly like industry as possible. The patient "earns and learns" on factory processes. His progress in attitude and ability is recorded. A number of patients on doctors' recommendation start work part-time and continue until they are able to tolerate a full day. Sometimes the processes available offer actual job training. More often the processes are used to determine the patient's suitability for benchwork. It is hoped that eventually all may enter industry. A small percentage of the people in this shop are not easily absorbed in industry and can thus be termed sheltered.

SEWING DEPARTMENT. In this sheltered-work department, women able to run a power machine or do fine sewing carry out wholesale orders from hospitals and business houses, supply retail

orders, and make articles for direct sale. These women are paid weekly on a piecework basis. Community Workshops is responsible for marketing the products manufactured.

Differentiated Homebound Program

OCCUPATIONAL THERAPY. Registered therapists visit the homebound, bringing treatment, functional and psychological, to patients under doctor's prescription.

HOME INDUSTRY. Often patients who no longer need treatment become skillful enough to have their products marketed. These patients do not have enough tolerance to do production work, and hence they are included in the homebound program. They are supplied with material and paid for labor upon completion of work. Community Workshops takes responsibility for marketing their products. This work is supervised by the therapists in conjunction with the business manager.

INDUSTRIAL HOMEWORK. Patients not needing treatment and able to do production work because of necessary tolerance and ability are placed on factory processes through arrangements with the State Labor Department and the Federal Wage and Hour Division. Rhode Island had minimum wage laws and laws controlling industrial homework prior to the wage and hour regulations. The labor rate to Community Workshops patients must be the same as in the factory and so verified by representatives of the State Labor Department. Usually there is a waiting list of patients desiring this service. Acceptance is decided upon by the social worker on the basis of psychological as well as financial need. An industrial homework supervisor has charge of teaching and checking this work.

Therapists give prevocational testing to most of the patients before their acceptance on the home industry or industrial homework program. They determine also tolerance and fatigue point and help patients to work in the position most comfortable to them.

FRIENDLY VISITOR SERVICE. Qualified volunteers visit regularly, in the home, patients needing friendly outside interest. These are patients who do not need treatment or case work and who are not able to do home industries or industrial homework but who are lonely and need a feeling of belonging. Volunteers report to and

consult with the social worker. Monthly meetings of visitors are held from October to May.

WHO IS ELIGIBLE FOR SERVICES. Shop services are available to qualified disabled persons who can transport themselves to the shops.

Full services to the homebound are available only in and around the city of Providence. Occupational therapy services to the homebound are available to the Woonsocket and Pawtucket Community Fund areas and to other areas if financed by the State Department of Rehabilitation or any voluntary source.

Need—physical, vocational, mental, and social—not means, is the test for service. Those who can pay for occupational therapy services are expected to do so. The amount is determined by the social worker and patient in consultation. Our yearly case load averages 340 individuals in all services; of these approximately 100 are seen only by case workers, approximately 100 are enrolled in various shops, and the rest have some sort of homebound service.

Structural Setup

Like most New England agencies under Red Feather auspices, Community Workshops is governed by a board of directors of lay people. These people (doctors, business men and women, lawyers, and women with a spirit of community service) reflect the business of the agency.

A Service Committee of Women Volunteers acts as aides in our various shops. They have charge of our publicity, and they conduct the sales of the articles made by the sewing department and home industries groups. They are responsible also, with the staff, for the successful running of annual Christmas parties and field days. An effort is made to bring to these events all the homebound who can readily be transported in cars. The board of directors hires an executive secretary, who in turn selects a staff which carries out the policies set by the board. In 1948, in addition to the executive secretary, the staff consisted of two social workers, one full-time and one part-time; three occupational therapists, two full-time and one part-time; and a business manager, a bookkeeper, two shop supervisors, an industrial homework supervisor, a stenographer, and a telephone operator. Staff vacancies are filled whenever possible by qualified handicapped persons. A committee of doctors appointed

by the president of the Providence Medical Society advises our staff on medical problems.

"Coordinating services" was one of the precepts in the articles of incorporation. Advisory committees headed by a board member and consisting of professionals in allied fields were set up in 1931 as a means of coordinating, advising, and furthering the work of the case workers and occupational therapists. The advisory committee to the therapists consists of nurses, physical therapists, occupational therapists, home teachers, etc. Individual case situations are discussed, but the patient's identity is not disclosed. Projects such as the Clinic for Cerebral Palsied have developed when the need was discovered here, studied, and passed on to the community.

The occupational adjustment committee, headed by a neuropsychiatrist and board member, advises the case workers. The committee consists of placement workers, counselors, case workers, etc. from both public and private fields. Any committee member may present problem cases for discussion, in which the patient's identity remains confidential. A committee for further study of epilepsy resulted from a need expressed in this committee.

Jointly sponsored by each committee and later taken over by a committee on rehabilitation appointed by the governor of Rhode Island, a series of seminars for professionals in the field of rehabilitation and allied professions was given in 1947-1948. The seminars * were on "Rehabilitation of Pulmonary T.B.'s," "Aural Rehabilitation," "Cardiacs," "Emotional Aspects of Handicapped Adults," and "The Exceptional Child." The last-named seminar motivated the formation of a Rhode Island Council for Exceptional Children.

Community Workshops is a Red Feather Service and is supported mainly by the Rhode Island Community Chests, Inc. We look forward hopefully to further expansion in other areas of our state and to improvement in and additions to our present shop services.

* Reports of some of these seminars may be had upon request.

THE A.A. PROGRAM OF RECOVERY *

By A MEMBER OF ALCOHOLICS ANONYMOUS

What is this Alcoholics Anonymous? What are the methods of this growing organization that is helping alcoholics to recovery? What makes it tick? These questions are asked every day. They are not easy to answer. The purpose of this article is to give a brief history of this important lay organization and to tell some of the methods used by its members.

As recently as twelve years ago there was little hope for the alcoholic. He was regarded as a joke or as an incorrigible by most of society. A puzzle and a nuisance to the medical profession, he was also a problem to clergymen, many of whom tried unsuccessfully to help him. What friends he had left simply advised him "to be a man" or to use his will power.

If he was poor, he was dragged into a city hospital or a state institution. But if he had money or influence, he was advised to enter a private sanitarium that specialized in alcoholic addiction. A wealthy alcoholic would be spirited into a general hospital by his doctor, who classified him as a "nervous" or neurotic case. Unhappily, none of these methods solved his problem.

After the acute medical phase of the disease was treated, the alcoholic went back into society only to discover that he still had an obsession to drink. Even long confinements in state institutions—sometimes for more than two years—were unsuccessful. Upon release, invariably the alcoholic would drink again. Indeed, the desire to drink appeared to be stronger after a long period of confinement.

Curiously, the first step toward a practical solution of the problem was taken by an alcoholic. In 1934, an alcoholic—known to thousands today as "Bill"—found that he could solve his own problem by helping other alcoholics.

Bill, too, had been desperate. He had tried everything to stop drinking. He realized that if he continued to use alcohol he would

* From *Federal Probation Quarterly*, March, 1948. Appearing in this volume by permission of the managing editor, *Federal Probation Quarterly*, and of the author. Originally published under the title "Easy Does It."

die. The last time he landed in a hospital, he was at the end of his rope. In the quiet of the night he cried out to God for help, and, for the first time in his life, experienced peace. He knew that his prayer had been answered. It was because of this experience that he decided to try to help himself by helping others.

When he left the hospital, Bill literally searched for *other alcoholics.* His early, often stumbling, efforts were the true beginnings of Alcoholics Anonymous. Today this technique of working with and for others is the basis of the organization's Program of Recovery.

Bill's first efforts were discouraging. Telling his story to alcoholics, he often brought them into his home for care and treatment. None remained sober. Often his "patients" would dry up for a few days and then get drunk again. More often they would sober up and leave without showing any interest in remaining sober.

But Bill stayed sober! He found that his efforts with others were helping him to stay well. He also discovered that alcoholics could not remain sober unless they had an *honest* desire to stop drinking. Every now and then one of Bill's boys would remain sober for a few weeks. During this period he would work with Bill on some other alcoholic.

After a few months, Bill left on a business trip to a Midwestern city. Having been sober for a relatively long time, he now felt that the time had come for getting reestablished in business. But it was not to be. A strange turn of events caused the business deal to fail, and he was left stranded. His first thought was to "drown his disappointment." Instead, he telephoned to a stranger to find another drunk to help!

It was that telephone call that eventually brought Bill into contact with "Dr. Bob," an alcoholic physician, who is one of the cofounders of the movement. These two men, working together to solve a common problem, actually started A.A. Today, the movement has more than 80,000 members in some 2,700 Groups in the United States and abroad.

How does A.A. function? The work plan of the organization is known as the A.A. Program of Recovery. This way of living is composed of twelve steps which are the combined experience of hundreds of early A.A. members. It evolved by trial and error and finally was set down in the book, *Alcoholics Anonymous.* The pro-

gram is loosely constructed and so elastic that it has proved adaptable to any type of individual who suffers from alcoholism.

In simple terms, the program consists of admission, surrender, and action. First, a new member must admit honestly to himself that he is an alcoholic. This step is not easy, because man is vain and most alcoholics are excessively self-centered. No man, particularly an alcoholic, finds it easy to admit that he has an addiction that the world considers either a sin or a weakness.

To overcome this resistance to admission, the program defines an alcoholic as a person whose life has become unmanageable because of the use of alcohol. It is suggested that the new member test himself by this definition. If his answer is "Yes," the member has complied with the admission part of the program.

Surrender is also difficult for many persons. Sometimes a man must indeed be desperate to bring himself to surrendering to a power greater than himself. And yet the new member must be willing to turn his life over to a Higher Power if he is to recover from alcoholism. In this sense, surrender could be called a transference.

The medical profession considers alcoholism as an incurable illness that ends in death or madness. If the new member can be made to realize that fact, little persuasion is needed to get him to transfer his problem to a power stronger than he is.

In any event, it has to be done if success is to be achieved, and, for many reasons, this part of the program is easy. If the alcoholic can be made to realize that he will continue to suffer if he resists the idea of A.A., he will be persuaded.

Often a new member is heard to say: "I cannot accept the God angle of this thing." To these persons A.A. says: "Take it easy. You aren't being forced into anything. Come to our meetings with an open mind. Some day you will know what it means."

The action part of the program already has been described. It simply means working with other alcoholics. Most new members have little trouble with this part of the program. It is exciting to rush out on a call; get a sick alcoholic into a hospital; visit him to tell him your own story of recovery; and see him emerge from the acute stages of his illness.

Many members forget, however, that there is another and more important part of action in the A.A. program. It also means working on one's self, practicing A.A.'s principles of living in one's own

life. The recovered alcoholic who walks down the street to his home or his office is practicing the action part of the program. He is a living example of the effectiveness of A.A. And by his example he is a convincing argument that the program works.

Members of A.A., however, are not missionaries. As members of A.A., they take no stand on controversial issues such as the wet or dry question. As individuals, of course, they take any stand they wish on any subject but they do not bring the organization into it. They are "informers," but not reformers. In other words, A.A. members are normal human beings who retain their own sobriety by carrying their own stories to others who suffer from alcoholism.

What are A.A.'s techniques? One of the most important is friendship. To be friendly with another drunk is easy for an A.A. Having been through the suffering and loneliness himself, he understands the new member. His own experience with alcohol immediately creates a bond of sympathy with the new man. And friendship is important to the new member. If he has been an alcoholic for many years, he probably has few friends left. He *needs* friendship. He needs again to feel that he "belongs" to somebody or to some group of persons. The fact that he recognizes in other A.A.'s persons who understand his problem goes a long way toward his recovery.

Having established a bond of understanding, the older member and the new feel "at home" together. The new man sees in his friend a person who has recovered from an illness similar to his own. After a few talks, he realizes that there is a solution to his problem. It is probably the first time in his struggle with alcoholism that he has experienced a *hope* of recovery.

Another technique is the use of slogans and phrases as handy tools in putting the program into action. "First things first," "Live and let live," and "Easy does it" are examples of these slogans and the way A.A. attempts to make the new member feel at ease.

Active alcoholics are enormously impatient. Because of their drinking habits, their lives are thoroughly disorganized. They are confused. And when they come into A.A. they want all the good things—including sobriety—at once. Little do they realize that sometimes recovery is a slow and painful process.

To condition the new man for the tough things to come, he is told to do "first things first." He is warned that he cannot solve

all his problems at one time. He is advised to take inventory of his problems and to solve them one at a time. It is patiently explained that he "can't get everything out of hock, make up with his wife, repay loans, get new clothes, get a job, make amends to persons he has wronged, and obtain peace of mind" all at the same time. He is advised to attack his problems cheerfully and separately; to make an effort each day to set one thing right.

The average alcoholic, after a few weeks of sobriety, begins to feel very well indeed. His eyes clear up, the bloat recedes, appetite returns, and he begins to sleep well again. Often he mistakes these physical symptoms for a permanent "cure." As time goes on and his personal problems become less annoying, he may begin to be bored with A.A. meetings. He may lose his sense of proportion and build up resentments against others in the group. It is at this time that "Live and let live" becomes important. At the first sign of these symptoms older A.A.'s point out to him that he cannot afford to think he is "cured," that he cannot afford resentments. It is impressed upon him that his job is to secure his own sobriety by following the A.A. program.

They tell him how they made these same mistakes; how they found that resentments caused them unhappiness or, in some cases, a relapse into drunkenness. They tell him not to lose sight of the fact that every member of the group is engaged in a mutual effort to stay sober; that if he will try to help instead of resenting others, he will have a better chance of staying sober himself.

Because alcoholics are impatient, A.A. uses the slogan, "Easy does it." Relax, they say, and your troubles will take a different perspective. "Come to meetings and keep an open mind," they suggest, "and you will find that you are staying both sober and happy." Tenseness, particularly in the early days of sobriety, is a part of the sickness. Like every other part, however, it will disappear if given a chance. Take it easy and have faith in what you see around you. Every A.A. has suffered from tenseness, so remember that easy does it.

A.A. meetings generally are of two types, the open meeting and the closed meeting. The open meeting is most common. At such gatherings not only A.A.'s but others are invited. This type of meeting affords an opportunity to wives, husbands, and friends of A.A. to see what is going on. Closed meetings are for A.A.'s only.

The open meeting is conducted by a "leader," usually chosen for the night. He acts as master of ceremonies, introduces the speakers, and manages the agenda. As a rule he discusses briefly the points made by one speaker before introducing the next. At some point in the proceedings, he will ask the secretary to make announcements; at another, he will ask for volunteers to take up a collection for expenses.

The speakers usually are A.A.'s who have been sober three months or more. Most groups do not ask a new member to speak until he has been on the program for at least three months. There are several reasons for this practice. Most new members need three months to recover physically from alcoholism. Most, at first, are nervous and shy. Many do not get the program in the beginning and relapse into active alcoholism. And experience has shown that it is wiser not to speak at a meeting too early.

The speaker simply tells his own story. Beginning with the admission that he is an alcoholic, he gives a brief account of his drinking; of his descent into uncontrolled alcoholism; of the development of his obsession. Then he tells how he heard of A.A. and what he did about his problem through the A.A. program. The story is in no sense a "confession." The speaker stands before the group as an example of the effectiveness of the program.

Most meetings last about an hour and a half. Three or four speakers are heard. The atmosphere is relaxed, and there is good humor and deep interest in the remarks of the speakers. The new man attends the meetings and listens. If he attends a number of meetings, sooner or later he will identify himself with some speaker. He sees before him a man quite like himself who has become sober and happy through A.A. Indirectly, he is encouraged to help himself in the same way.

The organization has no dues, no initiation fee, no rules. Each group is supported by the voluntary contributions of its members. No outside contributions are accepted. In the larger cities, a number of groups contribute to the support of an "intergroup office" which serves all the groups in the area. This service includes the answering of written or telephoned inquiries about A.A.; hospitalization for alcoholics; local and public relations; and intergroup business. For example, the New York Intergroup Office, which serves some seventy groups in the New York area, arranged an anniversary

dinner recently at which more than 1,700 A.A.'s and their friends heard a well-known nonalcoholic speaker. This office also arranged hospitalization for more than 2,000 alcoholic patients during the two-year period 1946-1948.

A.A. also has a general headquarters, The Alcoholic Foundation. This office, located in New York, serves all the A.A. Groups throughout the world. From this office thousands of letters have gone out to lone A.A. members who are not near a group. Hundreds of letters went out to men and women in the armed services during the war. Many letters go daily to A.A.'s at sea or in secluded parts of the world.

The Alcoholic Foundation also publishes the book *Alcoholics Anonymous* and its monthly newspaper, *The A.A. Grapevine,* and acts as a general public relations office. Its staff consists of four A.A. employees who direct the A.A. work and supervise a non-alcoholic business staff who perform the business duties of the office.

Visitors from all parts of the world visit the Foundation. Recently, a London doctor dropped in to discuss A.A. and to see for himself how the organization works. On another occasion, a lady from India flew in to find help with her alcoholic problem. Visiting A.A.'s from all over the United States drop into this office daily.

The Alcoholic Foundation is supported by voluntary contributions of the groups throughout the world. It accepts no outside donations and operates on the principle that it will spend only what is contributed to it. To give an idea of the small per capita cost, last year the General Office operated at an average cost of approximately $1.50 per member.

A.A. always has been interested in the special problem of the alcoholic prisoner, probationer, or parolee. It was only recently, however, that the organization started to move into jails, penitentiaries, and detention barracks of the armed services. An article which appeared in the January-March, 1947, issue of *Federal Probation Quarterly* discusses the progress of A.A. in prisons.

How does A.A. work in prisons? Do prisoners have a special problem? Is the A.A. Program of Recovery adaptable to men and women who have no opportunity to drink?

There is overwhelming evidence that A.A. is doing an effective job in the prisons. Today, hundreds are going out into the world with a new outlook on their drinking problem. These men and

women, who have learned about the A.A. way of life in prison groups, are accepted immediately into the outside groups without any embarrassment. No questions are asked of them because no questions are asked of anyone. Only performance counts in A.A.

In Washington an A.A. member sits in the Municipal Court once a week along with the presiding judge. He screens alcoholics charged with drunkenness in an effort to help them. If the prisoner wants help and is believed to be sincere, he often is placed under the supervision of this member, who steers him to the nearest A.A. group. It is reported that the "majority" of these persons are finding sobriety.

Women prisoners who are alcoholics are finding help both in prison and upon their release. In New Jersey, one women's prison group loses a member a week to an outside A.A. group. Not many of these women relapse. From the beginning they are sponsored by women A.A.'s who not only understand their drinking problem but sometimes have been in prison themselves. Because this sort of activity goes on all of the time, it is impossible to estimate the number of women A.A.'s who have found happiness and sobriety in A.A.

Like any sizable organization or movement, Alcoholics Anonymous numbers among its members many veterans of the armed services. Perhaps their alcoholic destinies were speeded by such wartime service; A.A. does not inquire the reason, but helps wherever possible. In 1948 there were nineteen groups in Veterans Hospitals. Almost all of them were instrumental in the recovery of alcoholic patients who sincerely sought an answer to the drinking problem. They have a fine record of self-help, encouraged by the administrative staff of the hospital and adjacent A.A. groups. The Alcoholics Anonymous General Service Office in New York will gladly furnish upon request additional information about this operation or any other phase of Alcoholics Anonymous activities.

THE CLEVELAND REHABILITATION CENTER

By Bell Greve

The extension of a doctor's office, an outpatient department of a hospital, an arm of a school, an industry, a tool for social agencies, and the hope of men and women who have disabilities—that's a rehabilitation center—a comprehensive, community rehabilitation center. It is common knowledge that hospitals are few and crowded, that more and more hospitals are sending patients home after the shortest possible hospital stay, that folks are living longer, and that medicine is keeping the severely disabled alive. Also the desire to be a part of the community, in school and work, regardless of one's age or condition, is a pretty general and common desire today. It is our way of life in the U. S. A.

At the first Inter-American Conference on Rehabilitation, held in Mexico City, July 1948, at which nineteen nations in North, Central, and South America answered the roll-call by giving a brief statement of conditions and problems in their respective countries, the first resolution adopted in the Minimum Five-Year Program was that rehabilitation is a *right* of man and not a charity. The second resolution was based on a universal proclamation that man is more than flesh —that he is mind as well as body with spirit and emotions and capacities as well as limitations. This resolution stated that every nation has the *duty* of making readily available services which will help each crippled and disabled person to develop physically, mentally, and vocationally and to face squarely the reality of his situation, with a determination to live his life to the fullest, contributing to his nation rather than being a permanent liability.

Since 1889 the Cleveland Rehabilitation Center, under several different names, has furnished some type of service for persons with disabilities. In its first days when it provided recreation for children in a general hospital, it was known as the Sunbeam Circle; then it became interested in education and in training for jobs and employment and changed its name to the Association for the Crippled and

Disabled. Now, in a special building constructed in 1938, it has a comprehensive program and is known as the Cleveland Rehabilitation Center.

The Cleveland Rehabilitation Center divides its rehabilitation services broadly among the three following departments:

1. Medical, mental, and physical rehabilitation
2. Social service and individual planning
3. Vocational and industrial rehabilitation

During a year the doors of the Center admit approximately 1,300 different individuals of all ages, with all types of disabilities except hearing and sight defects, and with varying degrees of disablement. At any one time about 700 different persons are receiving one or more services either at the center or in their own homes, and thirty-five to fifty new applications are received monthly. The majority of referrals are made by private doctors. Station wagons maintained by the Center transport 130 to 150 different persons each week to the Center, some daily and some two or three times a week, according to the individual plan. More than 300 are always receiving physical, occupational, or speech therapy, and 120 to 130 are in the vocational and industrial workshops.

The present Center is the result of a slow but steady growth. Its board of trustees has cared intellectually as well as emotionally about what was happening to people in the immediate community—people who were neglected and pushed aside. This board was willing to fight for what it believed in, for laws creating government departments, and for funds from private sources with which to supplement government responsibilities. It was willing to demonstrate, to experiment, and to develop other institutions and agencies as well as its own.

Great strides have been made during the past few years in government responsibility, federal, state, and local, in medical knowledge about prevention, in combating disabilities, and in the development of private organizations, national and local. Today there is no sound reason that the needs of the crippled and disabled person should not be met, wherever he may be in the United States. Certainly there is no need to use a process of trial and error in developing services nor to repeat the mistakes which were made years ago. Plenty of demonstrations completed successfully throughout the na-

tion provide a basis for the establishment of programs and procedures as sound practice and no longer experiments. Why then are disabled persons waiting for treatment or training or both in many places? In all communities throughout the country, one or more government agencies and several private organizations have proclaimed definite responsibilities, and in all communities there are citizens who are deeply interested in local health and welfare problems. What seems to be needed in many places is leadership in over-all planning and sticking to a plan. Too often programs are so limited or funds so lacking that many persons are not served who are eligible for a particular service.

In watching the growth of the Cleveland Rehabilitation Center one must recognize the broad thinking and planning of its board of trustees and the board's realization that successful rehabilitation is not one service alone. No one agency can do all that is necessary if the crippled and disabled person is to have an opportunity to develop all his potentialities. There must be a variety of services and teamwork among available institutions and agencies, both government and private.

In one Cleveland neighborhood there is a successful tailor shop operated by Mr. John U., who is in a wheel chair most of the time. He formerly was a tool designer in an industrial plant. One fall while hunting he fell from a tree and fractured his spine. He was hospitalized in a general hospital in which there was no physical rehabilitation, and finally he was sent home as a bed patient. However, before he left the hospital his situation was referred to the Cleveland Rehabilitation Center with the hope that some type of home industry might be developed. Immediately the rehabilitation forces of the community joined in a plan—the Visiting Nurse Association gave bedside care and taught Mrs. U. how to help her husband; the Institute of Family Service assisted in moving the family from a second-floor apartment to a first floor and gave temporary aid until the family was accepted by the Division of Aid to Dependent Children, when the family resources were exhausted; a physical therapist from the Cleveland Rehabilitation Center gave treatments in the home until the doctor authorized transportation to the Center for an expanded therapy program; the industrial plant furnished a walker; and finally the Bureau of Vocational Rehabilitation provided vocational training in tailoring. For a period of al-

most five years the highly skilled services of government and private agencies were thus combined for the rehabilitation of one individual.

However, successful rehabilitation is more than a combination of special services and more than teamwork of agencies. In addition to the ready availability of various special services, medical care, education, vocational counseling and training, etc., the determination and grit of the individual plays an equally important part, and the attitude of the general public completes the program. The general public must understand what rehabilitation is all about, and must be willing to pass the laws and furnish necessary funds either through taxation or private contributions. But above all else, the general public must accept the individual who has a disability as a part of everyday community life and not push him into a minority group or a special category.

Where does a rehabilitation center fit into a community program of successful rehabilitation? Such a center is a new type of institution. Its value is being recognized more and more in all nations and has received tremendous impetus since the recent war. As it is developed to meet the needs of a particular locality, the center will be a different type of institution in various places. It may be set up with or without hospital facilities. One type of service will be emphasized in one community, and another special service will be primary in another community. All centers function, however, under the over-all present-day philosophy that regardless of age, race, creed, or politics each person who has a disability which prevents or retards satisfactory adjustment in everyday life—school, industry, or social life—shall have every possible opportunity for individual development. The rehabilitation center may fill in gaps between other services, or it may furnish the only specialized services in a community. Usually it combines under one roof and one administration a variety of highly skilled services.

At the Cleveland Rehabilitation Center the following services may be secured in combination or singly by adults or children, veterans or civilians:

Medical examinations by consultants (specialists in various disabilities)
Physical therapy
Occupational therapy
Speech therapy

Braces, prosthesis, wheel chairs, hospital beds
Nursery school
Adult tutoring
Vocational testing and counseling
Vocational training in various trades
Work experience and development of work habits and work tolerance
Regular employment in factory units
Case work treatment and individual planning
Transportation to and from the Center and home or hospital
Friendly visiting, crafts, and recreation for the homebound
Home industries

All persons coming to the Center naturally do not need all services, but the services are there to be utilized when necessary. More and more severely disabled are coming to the Center, and a combination of several services is usually essential to meet their needs. In June, commencement exercises are held for those completing the prescribed vocational training courses in such subjects as power machine operation, dressmaking, carpentry, and furniture refinishing.

The leader of one recent class was a young girl who seven years before was trapped in a hotel fire in a neighboring small town. She jumped out of a third-story window and for months was expected to die. During the seven years she had excellent medical care in a good nursing home. Physical and occupational therapy were started early and continued until graduation. She was transported from the nursing home to the Center for such treatments. Vocational testing and counseling paved the way for a training course in dressmaking at the Rehabilitation Center, with the cooperation of the State Bureau of Vocational Rehabilitation. It was found that her education had been limited and she was unable to read dress patterns and to do arithmetic, so adult education was started at the Center. The Social Service Department carried the responsibility of case work and individual planning. Six special services under one roof were combined throughout the years with the determination and grit of this individual to overcome her handicap and to develop her capacities for successful living.

While services at the Cleveland Rehabilitation Center are divided into departments, the individual is not divided into parts. Each department feels its responsibility to the whole program and to the

particular individual who, from the day he steps his foot into the center, is a part of all plans. Frequent conferences between staff members of departments are held, and central reporting is the practice. Each department understands what the others are attempting to do. In its relation to other organizations, hospitals, and institutions in the community the Center is very flexible, and every effort is made to strengthen the relationship between the organization or agency which referred the individual to the Center and the client or patient, so that the plan will run smoothly and the patient need not be disturbed by a variety of agency contacts and conferences. Whenever possible, the referring hospital, institution, or agency is asked to continue in a primary relationship and to direct the individual planning, particularly if it has a case work or social service department.

Several years ago, at the request of the board of trustees of the Cleveland Rehabilitation Center, the Cleveland Academy of Medicine appointed a medical advisory committee of specialists in various disabilities for the purpose of advising the board regarding medical policies and procedures. This committee has taken great responsibility for the development of a comprehensive program at the Center. The committee recommended that the Rehabilitation Center should be open to all doctors of medicine and all hospitals, and that the referring medical source should continue active supervision while the patient received services at the Center. The committee further decided that the Center should employ specialists in each type of disability accepted for service. A cardiologist, an orthopedist, a doctor of physical medicine, a tuberculosis specialist, and a general practitioner were appointed to the staff so that each patient might have the advantage of consultation by a specialist with the referring doctor.

Total staff at the Cleveland Rehabilitation Center has been built up to between 55 and 60, including, in addition to the 5 medical consultants, 8 physical therapists, a registered nurse, 6 occupational therapists, 3 part-time speech therapists, 7 in the social service department, 7 vocational teachers, a nursery school teacher, a psychologist, a comptroller, 6 office workers, 4 bus drivers, 3 attendant orderlies, and kitchen, laundry, yard, and maintenance help.

The Rehabilitation Center joined the Cleveland Community Chest and Welfare Federation when the Chest was organized. Its budget

is carefully scrutinized and determined before the beginning of a fiscal year. In accordance with Community Chest planning and procedure the Center conducts no campaign for funds, but is permitted to receive gifts and grants from foundations.

The Cleveland Rehabilitation Center has always been deeply interested in the services and responsibilities of other institutions and agencies, both government and private, which are concerned with some type of rehabilitation, and whenever possible has shared with such agencies the cost of furnishing special services at the Rehabilitation Center. Financial agreements have been made with the State Industrial Commission, the Board of County Commissioners, the State Bureau of Vocational Rehabilitation, the Veterans Administration, the County Department of Public Welfare, City Relief Departments, and Services for Crippled Children. Nonfinancial cooperating arrangements have been made with other public agencies such as Aid for the Aged, county, city and school nurses, county and city schools, state-city employment services, and county and city hospitals. Financial and nonfinancial arrangements have been made with private hospitals, industries, several foundations, all Community Chest and Welfare Federation agencies, the Anti-tuberculosis League, the Society for Crippled Children, and the National Foundation for Infantile Paralysis. In some instances a voluntary and private agency may make a lump sum contribution for service given a particular group in which that agency is interested, and in other instances fees are paid on an individual basis for definite service rendered.

In addition to the appropriation made by the Community Chest, the Center receives an income from the sale of articles made in the industrial workshops and in home industry, as well as from various sources mentioned previously, and private fees for treatment. The annual budget is approximately $180,000.

The rehabilitation center is a service organization for persons who have disabilities. It is not a relief institution to which people who are indigent are sent. It is natural at Community Chest campaign time that emphasis and special publicity are given to the facilities available to the crippled and disabled, and frequently individuals who are private patients of a doctor or in a hospital feel that the rehabilitation center is "a charity institution" and should not be used by them. In

most communities, however, it is the only special service available for full-pay and no-pay patients alike.

The Cleveland Rehabilitation Center has no dormitory facilities. If a patient is referred who needs overnight care, arrangements must be made with licensed nursing homes or boarding homes. Transportation to and from the Center is furnished by the Center, which maintains three station wagons and a bus.

Volunteers are a very important part of the program at the Rehabilitation Center and serve in the different departments. As a rule they are recruited from the Volunteer Bureau of the Welfare Federation where, after proper application and personal interview, they are assigned to definite training courses which help to prepare them for work in various agencies. The sales department of the vocational and industrial rehabilitation shops at the Center is run entirely by volunteers. They have the responsibility of determining what should be produced for the retail market. They have full responsibility for all retail sales, which include a large Christmas sale at the end of November, and a summer sale in late June. The first is held in a downtown hotel and the second at a country club. At other times, special sales are held in various places—a department store or restaurant or someone's home.

Most of the production in the industrial factory at the Rehabilitation Center is on contract for wholesale orders. Products include, in the sewing unit, patients' gowns and other garments for hospitals, uniforms for waitresses and maids, curtains for bunks of lake boats, and household supplies; in the men's department, which is mainly carpentry, woodworking, furniture repair, and upholstering, orders are received from various sources. The volunteer has no responsibility for securing wholesale orders. In the diversified and commercial shop a great variety of work is handled during the year, including mail order work, stuffing of envelopes, stringing of tags, and making partitions for electric light bulbs. There is no machinery in the last-named shop because the majority of the patients are epileptics. Volunteers help to secure work for this particular department and are constantly interpreting the needs of the department.

Other volunteers serve in the children's unit, at weekly clinics of the various specialists, and in the publicity department. A large group known as Friendly Visitors, under the supervision of volunteer

but professionally trained case workers, work in the social service department. This group is primarily interested in persons who are homebound but do not need physical or occupational therapy and whose condition is such that they cannot produce for the home industry division of the industrial workshop department. A Friendly Visitor, or one who is trained in crafts and recreation, has constant contact with the homebound person. In addition to friendly calls in the home, the visitor arranges for trips out of the home—picnics, parties, and concerts. Two outstanding events to which all homebound persons look forward are the annual picnic given by the Al Sirat Grotto and the Christmas party given by the Junior Chamber of Commerce. Arrangements are made for the transportation of bed patients, as well as those in wheel chairs, to both of these events, and the Friendly Visitor helps in the preparation and rejoices with the patient in the days following. These volunteers help to mold public opinion regarding rehabilitation and are a powerful influence for legislation and fund raising, in addition to the real help which they give to the Center in direct service.

A rehabilitation center can easily become the hub of community planning in the field of rehabilitation as well as providing special services to persons with disabilities and offering opportunities for the training of the professional staff. At the National Health Assembly held in Washington in May, 1948, the section on physical medicine and rehabilitation pointed out that, while rehabilitation is rapidly becoming an accepted part of our way of life, "social prejudice" remains the greatest obstacle to the attainment of economic security and independence for handicapped men and women. Emphasis was given to the need of beginning rehabilitation at the time disablement occurs and continuance without interruption until successful rehabilitation has been accomplished. It was pointed out that the absence of physical medicine in hospitals must be overcome as rapidly as possible. It was recommended that rehabilitation centers be established regardless of whether they are operated on a government or a voluntary basis. If hospitals do not develop departments, and if they continue to send more and more patients home in the shortest possible time, then rehabilitation centers must be prepared to furnish more services as an extension of the center and outside of the center proper. These services include the loan of professional staff members to hospitals having no departments of

physical medicine; transportation to and from hospitals and the center; physical and occupational therapy for the homebound in their own homes, and transportation from the family home to the center; and physical and occupational therapy in commercial nursing homes, in which today thousands of persons are completely lost. The lack of physical rehabilitation services in a hospital may cut down hospital days and hospital costs and release beds for the acutely ill, but unless such services are furnished, it might be said that "medicine has only cheated the grave."

Whenever possible, a rehabilitation center should be affiliated with training schools. The need of professional staff in all phases of rehabilitation is great, not only in this country but particularly in war-torn foreign nations. The Cleveland Rehabilitation Center is affiliated with recognized schools and colleges and accepts on field assignment students in medical case work, occupational therapy, speech therapy, and vocational counseling and testing. In addition, students in the professions of medicine, physical therapy, nursing, and education come to the Center for lectures and to observe.

As hospitals develop more and more rehabilitation services for in- and outpatients, as regular schools adjust the child and youth with disabilities in the regular school system, and as more and more industries accept for industrial training and employment persons with severe disabilities, the various services in a rehabilitation center may change. One of the outstanding characteristics of a comprehensive community rehabilitation center is its ability to change as times and conditions change. The Cleveland Rehabilitation Center has been in a constant state of change since its program started sixty years ago. Its future plans contemplate helping small hospitals develop departments of physical rehabilitation, helping industry to analyze jobs in relation to the capacities of the severely disabled person, developing closer affiliations with training centers, developing neighborhood workshops so that the severely disabled may work nearer their homes, sponsoring a statewide marketing plan for the sale of articles produced by the homebound in rural communities, and considering the adaptation of rehabilitation techniques used with the physically disabled to the delinquent and mentally ill. The Board of Trustees of the Cleveland Rehabilitation Center believes that laws can be passed and funds can be secured for a program in which the community believes.

THE CURATIVE WORKSHOP OF MILWAUKEE

By MARJORIE TAYLOR

The Curative Workshop of Milwaukee was established in 1919 as an outgrowth of the physical rehabilitation services in military hospitals during the first World War. It has grown to the point where it serves over 2,000 patients a year and is an important resource in the community for physical restoration.

Patients are referred by their own physician, who prescribes treatment, and they remain under their physician's care until discharged by him. The patients represent a cross section of the community from the wealthy to those on small pensions or on relief, yet the greater number are persons of moderate means. Those who are financially able to do so pay the total cost of their treatment. For others the charge is adjusted or canceled on the basis of a financial study. Community Fund money is used to cover the cost of treating those unable to pay.

The Curative Workshop is interested in the physical, emotional, social, and economic rehabilitation of its patients. To treat the physical disability without consideration of the many other needs is shortsighted and ineffectual. The policy has been to use the existing special services in the community for supplementary treatment and adjustment of the patient rather than to attempt to duplicate such special services under the roof of the Curative Workshop.

The services available in the Curative Workshop clinic include medical social service, physical therapy, occupational therapy, and speech therapy. Patients are referred to other community agencies for more general social case work, psychiatric service, mental testing, vocational testing and advisement, vocational training, sheltered employment, and recreation. The use of other community services prevents costly duplication.

In addition to the clinic, the Curative Workshop serves in their homes those patients who need preparatory treatment or adjustment

before transfer to the Workshop clinic or who can better be treated at home. The clinic and home service departments are closely coordinated, and each supplements the other in a unified treatment program which meets the many individual needs of the patient.

Physical therapy includes the use of various forms of heat therapy, electrotherapy, hydrotherapy, massage, muscle training, and exercise.

Occupational therapy for adults provides motivation and control in exercise through mechanical exercise apparatus, craft activities, industrial work processes with the tools and machines of the job, and recreational activities. Testing material, which has been adapted to the motor problems presented by various orthopedic disabilities, is used to improve hand dexterity and mental alertness. Timing the patient with a stopwatch adds interest and serves as a motivation in increasing speed and work rate.

The majority of the adult patients have had recent traumatic injuries such as fractures, nerve injuries, contusions, crushing injuries, or amputations. They are usually admitted early and rehabilitated fairly rapidly to their former job or activity.

The patient who has a long convalescence needs to be upgraded in physical tolerance, to regain his work skills, and to adjust to the demands of his job. In addition to having his treatment in the morning, he brings his lunch, as he would at work, and gradually adjusts to an eight-hour work day. This is called the Work Adjustment Program, and the agreement of the patient's physician is obtained when the patient is ready for it. Return to work is more rapid for patients who have had this opportunity for physical and psychological adjustment.

For patients who will not be able to return to their former employment, vocational testing and training is obtained through the State Department of Vocational Rehabilitation or through a community agency. Treatment and training are carried on simultaneously whenever possible.

Men and women who have had cerebral accidents and have a residual hemiplegia, and frequently aphasia, are of great interest to the therapists at the Curative Workshop, who have found that much more can be done to restore them to independence than has in the past been thought possible. Many are young, some in their early twenties, and all respond to some extent to treatment, many returning to employment or resuming their family responsibilities.

The hemiplegics receive occupational therapy services in their homes as well as in the clinic, not only to help them become self-sufficient and regain as much use of the paralyzed members as possible but also to enlist the family's understanding and cooperation in the rehabilitation plan. Home treatment, interpretation, and guidance also prepare them for the group situation at the clinic.

Physical therapy is given to all early referrals and to others if it proves of value. Learning to be independent in meeting the demands of everyday life is stressed in occupational therapy as well as in walking training and exercise for the hand and arm. Those who have speech involvement receive speech therapy and re-education in reading, writing, spelling, and arithmetic. Resocialization—adjustment to feeling secure with other people, particularly strangers—is one of the most important of the clinic contributions. As the hemiplegics improve to a full day they bring their lunch, eating it together at the dining table, an experience which is therapeutic in itself. On this program their physical tolerance is built up and they are adjusted to their residual disability. In the group situation they realize that they share a common handicap and they learn that they have individual capacities which make it possible for them to live normal lives in spite of their limitations.

Speech therapy is important for the adult aphasic patient. At the Curative Workshop a special clinic is available for those patients who have a speech limitation either following a cerebral hemorrhage or as the result of a traumatic head injury.

Since the speech aphasic may suffer from other types of aphasia such as visual, auditory, and amnesic, the program must be developed to overcome these limitations to the greatest possible degree. Our therapy includes practical language work by which the patient tries to express himself adequately in both written and oral language.

Oral and written reproduction of short stories and articles build up the powers of concentration. Topics are assigned to each patient for experience in extemporaneous speaking. Lip reading is used to help in the visual interpretation of speech.

Memory exercises have proved invaluable and are presented in such a way as to stimulate the patient's desire to repeat them as perfectly as possible. Four- to six-line poems have been memorized by most members of the group. Plays in which both patients and therapists participate have been a stimulating addition to the pro-

gram. Singing is enjoyed by all group members, and games add to the interest of group work with each patient taking an active part.

The patient must be trained to realize his personal responsibility in completing assignments and in building up his own self-confidence in speech.

Children comprise about one third of the case load at the Curative Workshop. The largest group of handicapped children are cerebral palsies, with poliomyelitis next in number. All other types of neuromuscular and orthopedic conditions are treated. A posture clinic is maintained for the correction of poor and defective posture.

Wisconsin has a well-developed system of special schools for handicapped children who need transportation, special buildings, and treatment facilities. The Curative Workshop serves children of preschool age and those with less extensive handicaps who can stay in their neighborhood schools.

Physical therapy, occupational therapy, and speech correction procedures are adapted to the children's needs. A flexible program has been arranged for the preschool age cerebral palsies, many of whom are referred for treatment in infancy. This makes it possible to work both in the clinic and in the home of the child and to give the parents the individual help, understanding, and support that they so badly need.

Occupational therapy equipment for the preschool group has been planned to gain relaxation, control, and motivation in exercise. It is composed of miniature walking rails and steps, tricycles with special attachments, walkers for walking training, and many specially designed toys. The chairs and footrests are planned and adjusted to the individual needs of the child. Equipment is loaned to the parents for the child's use at home, and the parents are instructed in its use.

The Curative Workshop of Milwaukee is a nonprofit community clinic for physical restoration and rehabilitation. Its services are coordinated with the other rehabilitation services in the community. It is administered by a Board of Directors. It owns its building which was erected in 1939 at a cost of $100,000. An addition, doubling the size, was completed in June, 1949, at a cost of $245,000. Equipment is valued at $40,000.

The Curative Workshop started in a small portable building. Its growth is demonstrated by the fact that 433 physicians prescribed

treatment for 2,000 patients during 1947. More than half of the operating cost was earned through fees for treatment paid for by patients and by the selling of treatment service to insurance companies, self-insured industrial plants, the Veterans Administration, the Foundation for Infantile Paralysis, and the State Department of Vocational Rehabilitation. During 1947 over 1,200 patients were returned to normal activity, work, or school, at an average cost of $39.

THE GOODWILL WAY

By PERCY J. TREVETHAN

The "Goodwill Way" is an important phase of rehabilitation services in about 100 communities in the United States and Canada. It is the program of self-help for the handicapped that has been adopted by Goodwill Industries of America, Inc. In common with many other rehabilitation agencies, the autonomous local Goodwill Industries in these communities are struggling through trying years of evolution and expansion. While standards and programs may vary at the level of the local Industries, the ideals and objectives of the Goodwill Industries movement are represented in the national organization, Goodwill Industries of America, Inc., with national offices located in Milwaukee, Wisconsin.

The program promoted by the national organization is to provide special or sheltered employment, job training, rehabilitation services, and opportunities for personal growth for the handicapped and disabled. From humble beginnings in Boston's South End more than forty years ago, the movement spread rapidly all over America and, before the recent war, into several foreign countries.

Dr. Edgar J. Helms, founder of the Goodwill Industries movement, used the slogan, "Not Charity, but a Chance." Before his death in 1942, Dr. Helms saw the principal emphasis of the movement he inaugurated moving in step with changing social conditions. He encouraged the increasing attention the local Goodwill Industries were giving to physically, mentally, and socially handicapped persons. Today such persons have almost entirely replaced the economically handicapped who were among the clients of the early Goodwill Industries program.

The extent to which the reconversion to an emphasis on aid to handicapped persons has been accomplished is reflected in the fact that 84 per cent of the persons employed by all local Goodwill Industries at the beginning of 1948 were handicapped. Thirty-six per cent of the employees had suffered orthopedic, organic, or health liabilities. Twenty-three per cent had sought employment with Goodwill Indus-

tries because of age or infirmity handicaps. Mentally, emotionally, or socially handicapped persons totaled 14 per cent of all employees. The blind, or persons with defective vision, represented 5 per cent of all employees, and 6 per cent were men and women who were deaf, hard of hearing, or suffering from speech handicaps. Goodwill Industries employed more than 17,000 people in 1948.

An average of about 6,000 persons are employed in Goodwill Industries every month. An average in a case like this, however, can be misleading. Goodwill Industries combines special workshop facilities, operating under federal Wage and Hour Division standards, where more severely handicapped persons are employed for long periods of time, with rehabilitation services designed to return every person to a normal, useful, happy place in his community in a minimum time. Moreover, the balance between the sheltered workshop activities and the training programs is different in each local Goodwill Industries.

The only reliable conclusion that can be drawn from the statistics on employment is that individuals are encouraged and helped to make the quickest possible readjustment to the demands of normal living while they are in the employ of the Goodwill Industries.

Goodwill Industries have been compared to a vestibule that leads from the bitter dependency of a life limited by handicaps into the independence and self-sufficiency of victory over handicaps. Some severely handicapped persons must travel very slowly through the vestibule. Others need only a little assistance, a little training, a little encouragement, to achieve a quick, complete triumph over their disabilities.

For either type of Goodwill Industries employee, a job is the first step in the passage through the vestibule. Hours of work and dollars of "opportunity wages" can be calculated, but no one has ever been able to estimate the tremendous therapeutic value an honestly earned pay envelope can have for a handicapped person. Some people who come to Goodwill Industries are so severely handicapped that they have never been able to hold a job. Others have known the joy of productive activity up to the time they were disabled. Still others in many Goodwill Industries today are disabled war veterans who are finding a chance to overcome the handicaps of their combat injuries and to fit themselves into their home communities.

To men and women like this, a job is the key to self-respect, renewed enthusiasm, and determination to triumph over disability. A job is the first step in their rehabilitation.

The "Goodwill Way" in rehabilitation offers these jobs by providing a varied industrial program in each community where a Goodwill Industries is located. Basic in the program is the collection of household discards, clothing, furniture, and utensils—any articles with enough usefulness left in them to provide job opportunities. Cleaning, renovating, and repairing these discards, or preparing them for salvage when no legitimate job opportunity can be found in the articles, provides the work opportunities that bring "opportunity wages" for handicapped men and women.

Where the limitations of work on discarded materials, particularly the lack of assured repetitive operations, has hampered the rehabilitation activities of some Goodwill Industries, experiments in the use of new materials and contract work have been attempted. The Goodwill Industries of New York City, Buffalo, Columbus, Chicago, Dayton, St. Paul, and several other communities have made sufficient progress in such contract work and new goods experiments to suggest a broad new field of rehabilitation resources for the Goodwill movement.

Parenthetically at this point, Goodwill Industries products are distributed through the several hundred Goodwill Industries stores. The carefully cleaned, thoroughly renovated articles are sold by handicapped persons at prices low enough to appeal to low-income families. Yet these sales realize 80 per cent of the total income of Goodwill Industries each year. Nonincome-producing rehabilitation services which could not in any case be taken legitimately from the productive efforts of the handicapped workers require a subsidy that averages about 20 per cent of the budget of a local Industries.

The rehabilitation objectives of Goodwill Industries require careful attention to putting the handicapped person into a job suitable to his disability. The typical departments of a local Goodwill Industries provide a selection of work opportunities to fit almost any disability. There are sorting departments, laundry, dry-cleaning, and sterilization departments to insure the health and well-being both of workers in the plants and of people who buy in Goodwill Industries stores, clothing repair departments, shoe repairing, furniture repair-

ing, woodworking, electrical repairing, toy shops, doll shops, and many others.

There is no standard pattern for placement within the local Goodwill Industries. Even where the physical handicaps of two individuals are similar, physiological, psychological, and sociological factors vary so widely that the case-study method of placement has been adopted by most of the more progressive Goodwill Industries. Personnel counseling, medical examination, psychological and aptitude testing, and many other techniques of social service are used with varying emphasis and varying effectiveness in the local Goodwill Industries all over America.

Where expert social services in counseling, placement, and rehabilitation are available through agencies in a community other than the Goodwill Industries, such services are used. Many of the Goodwill Industries employees in such cases are referred to the Goodwill plant by other agencies. There is a cooperative exchange of information and services.

Formalized cooperative agreements between local Goodwill Industries and State Offices of Vocational Rehabilitation in most states are increasing, following the pattern of a national agreement, Cooperative Agreement No. 16, between the Federal Security Agency Office of Vocational Rehabilitation and Goodwill Industries of America, Inc. Where no such outside agencies offer services, where the services are inadequate, or where the services are not conveniently accessible to Goodwill Industries employees, local Goodwill Industries have begun to undertake their own personnel counseling, medical diagnosis, and social service activities in order to maintain an effective rehabilitation program.

Training is the second phase in the Goodwill Industries program. It is the natural companion of employment in a job that is suited to an individual's handicap. It is on-the-job training. The tools and techniques of a useful occupation are used under the direction of department leaders and plant foremen skilled both in teaching and in production and supervision. Far more important than the trade or technique that is studied is the general skill and dexterity developed, the work habits, the productive experience that is involved.

Of necessity, training, like placement, is pretty much an individual matter. For each individual training in Goodwill Industries, how-

ever, it is a case of learning while earning. The handicapped have an opportunity to help themselves.

Several Goodwill Industries in recent years have been pioneering in pretraining work with severely handicapped persons. More and more of the local Industries are following the lead of Dayton, Washington, Lincoln, Nebraska, and Buffalo in providing employment and training for homebound handicapped persons. As "homebound" programs in these and other cities are developing, it is becoming increasingly apparent that the real problem is to help these "homebound" persons out of their homes, into the Goodwill Industries plants, and then eventually back into normal community life.

This has been accomplished in several cases through skillful application of occupational and physical therapy to help the individual meet the simple demands of life, such as riding streetcars, climbing stairs, entering an automobile, and many other procedures simple enough for normal persons, but terrifying for an individual who has been considered, and who has considered himself, hopelessly homebound.

Employment, training, and rehabilitation services are three principal phases of the Goodwill Way, but the application of these three phases alone might still, in many cases, leave the handicapped and disabled person a long way from the goal of the Goodwill Industries movement. That goal is to assist handicapped and disabled persons "to attain the fullest physical, mental, moral, emotional, social, cultural, spiritual, vocational, and economic development of which they are capable." This program aims at the return of a "whole man," a person whose rehabilitation is complete in more than just the physical sense, to usefulness in society.

To attain this objective, Goodwill Industries seeks to provide something more than a job and training and therapeutic work. Goodwill Industries provides opportunities for personal growth by helping even the most severely handicapped person to enjoy normal social intercourse, individual and group recreational activities, self-expression both on and off the job, and religious inspiration. Particularly where individuals have become embittered because of their disabilities, such opportunities are frequently the deciding factor when the success or failure of the more tangible aspects of the rehabilitation program hangs in the balance.

Goodwill Industries candidly recognizes religion as a part of the total rehabilitation program. "Without religion, rehabilitation can never be fully effective." The approach of the local Goodwill Industries in the matter of religious inspiration is interdenominational, encouraging each handicapped person to find in the religion of his own choice the moral strength to conquer his disability.

Handicapped persons, whoever they may be, wherever they may live, and regardless of color or creed, are eligible for the services of Goodwill Industries.

Goodwill Industries of America, Inc., launched in 1948 an expansion program with a goal of eighteen new Goodwill Industries to be started in the United States, which was well advanced at the end of the year. The objective of the existing Goodwill Industries is an increase in and expansion of their services to handicapped and disabled persons in their communities.

That is the Goodwill Way.

SELF-SUPPORT, SELF-RESPECT, DEMOCRATIC LIVING

By M. Peter Brandeis

There is no doubt that the crippled child needs help as he grows up if he is to become an asset to his community. He needs not only hospitalization, appliances, and schooling but a chance to learn to compete in the modern industrial world.

The same is true of the man or woman who is struck down in the prime of life by an accident or crippling disease. The industrialist cannot afford to experiment. He cannot give the handicapped worker a chance until he has some reason to believe that *that* worker can function satisfactorily in his particular business.

During the war, 83 per cent of industry employed handicapped persons and did not find them wanting. There are many thousands who need only the chance in an industrial environment to become self-supporting, contributing members of the community.

In the midst of the depression of the early 1930's, when the disabled worker was truly the "forgotten man," the Federation of the Handicapped was founded. The disabled men and women who formed the organization were convinced that every handicapped person can become a contributing member of the community.

The organization was incorporated in New York State as a nonprofit membership corporation in 1937. It was reorganized in 1944 and its name was changed in 1946 from Federation of Crippled and Disabled to Federation of the Handicapped, Inc. At the same time the Federation became a member of the Welfare Council of New York City. In 1947 the organization moved to its present quarters.

The Federation is controlled by its handicapped members and a Board of Directors representative of medicine, social work, and business, the majority of whom are physically handicapped.

Tuesday night is important at the Federation of the Handicapped. It is the night the Advisory Committee meets. It is the night when seven severely disabled men and women—handicapped by infantile paralysis, amputations, and cerebral palsy—help formulate the prin-

ciples and policies of the organization. Seven years ago, these same citizens were among those classified as "unemployable." Today they are successful in business and the professions. This committee meets one evening each week to help other disabled persons to achieve normal living. Into each meeting every member brings all the knowledge and experience he has gained both as a handicapped individual and as a citizen in a democracy.

For the past twelve years, the Federation of the Handicapped has been providing on-the-job vocational training, free placement service, social activities, physical restoration, guidance, remedial education, noncompetitive employment, and various other services to thousands of orthopedically handicapped persons over the age of eighteen. It does this through a new interpretation of the standard rehabilitation principles and techniques.

Federation members (all are orthopedically handicapped adults) adopted in 1945 what has been called one of the most democratic constitutions of its kind. The entire staff of the organization, with a few exceptions in medical, therapeutic, and maintenance personnel, are physically handicapped. The members elect their own committees to work side by side with the board and management in the execution of principles set forth in the Federation's constitution.

The Federation administers its vocational rehabilitation program on an on-the-job basis. Under this system, every disabled person earns while he learns a trade in one of ten occupations. Believing that rehabilitation of the adult cannot be effective unless the individual is reasonably free from both the stigma of being radically different from his able-bodied contemporary and the stress and fear of financial insecurity, the rate of pay is based on an hourly wage rather than a piece method. This is done because disabled hands cannot by manual endeavor produce on an equal standard both in output and in quality with the able-bodied. Thus wages by the piece for manual occupation, the formula common in most sheltered workshops, do not gross the average severely disabled individual enough to cover the cost of lunch and carfare. On the other hand, disabled hands can turn out products comparable to any in the open market through the use of precision machines. The combination of the hourly wage and the use of precision machinery makes for good workmanship and good products.

The Federation of the Handicapped is neither a school nor a sheltered workshop. Aside from therapeutic and remedial education classes, it employs no teachers. In charge of the workshops are foremen or supervisors—disabled men and women who have been promoted from the ranks because of skills developed during training. Supervisors and coworkers of the handicapped individual have a greater insight into the emotional and psychological pitfalls into which he may fall, since they themselves have faced many of the same. No one is considered a patient or a student. All are employees, with all the rights and duties within the scope of that term.

Conditions in industry are duplicated as closely as possible. All the employees work a forty-hour week and learn to travel in rush hours. The Federation has succeeded in securing unemployment insurance, hospitalization with surgical benefits, and life insurance for all workers.

To be prepared for the workaday world, the individual must achieve a certain physical educational level. For this reason, the Federation provides instruction in relaxation, breathing, walking, posture, dancing, singing, speech, and use of the hands.

Those familiar with the rehabilitation process recognize that no program of physical restoration can be undertaken without medical guidance and supervision. The Federation of the Handicapped has two orthopedists as staff physicians. Every applicant for service, regardless of its nature, must present a doctor's report. This may be obtained without charge from the staff physician. Frequently the staff physician refers an individual to one of the doctors in the various fields of medicine who voluntarily serve on the Federation's Medical Advisory Committee and are on call for expert diagnosis and consultation.

After a medical examination has determined work capacity and necessary treatment, skilled Federation counselors aid each applicant to determine his vocational future. If the training he needs is one of the many types available at the Federation, he will stay there. If not, arrangements will be made with another agency to provide the necessary instruction.

Federation workshops are equipped with modern machinery which makes it possible to turn out products that sell from coast to coast on a competitive basis without the label "Product of the Handicapped."

While physical restoration, education, and vocational training are all included in the modern concept of rehabilitation, they do not complete the job. The Federation does not consider that a disabled person who is employed in the community is no longer in need of or eligible for its services. For adults, otherwise engaged during the day, the Federation makes its services available in the evening. Therapeutic classes, hobby clubs, weekly social events, monthly forums, leadership and citizenship courses, discussion groups on problems affecting the handicapped, a newsletter, and other membership activities round out the lives of disabled persons within the community. In addition the guidance and other services of the Social Service Department are available in the evening.

With this all-around program, financed without endowment and only the smallest measure of Foundation aid, the organization periodically encounters financial difficulties and finds it necessary to reduce its services. Running its workshops on the soundest of business principles and experience, it still must depend on voluntary contributions for 75 per cent of its income. This is caused by two facts: first, the workshops represent considerably less than one-half of the physical operations of the Federation, the remainder being devoted to guidance, therapy, and other services; second, there are always severely disabled persons in need of training in these shops who cannot be self-supporting.

Based on the principle that those who have overcome a disability can inspire and guide others who despair, the Federation of the Handicapped combines the practical experience of its members with recognized rehabilitation methods. In modern workshops, handicapped workers operate machines producing merchandise for free competition. At the workbench they prove over and over again that only intelligence and competent hands are required to do a job.

The Federation helps the handicapped adult to be self-supporting and self-respecting and at the same time to realize his responsibility as a human being to achieve his rightful place as a citizen within a democracy.

RELATIONSHIP OF SOCIAL SERVICE TO THE GENERAL FIELD OF REHABILITATION

By HAZEL NEWTON

Rehabilitation is the restoration of the handicapped to the fullest physical, mental, social, vocational, and economic usefulness of which they are capable. (Definition adopted by the National Council on Rehabilitation, August, 1943.) Rehabilitation should begin at the moment the disabling accident or illness occurs. Rehabilitation so deeply concerns each individual involved that most of the processes of rehabilitation must be on an individual basis. One of the fundamental principles of rehabilitation is that the whole person should always be considered, not merely the illness or injury of the person. This whole person is a part of his family, his neighborhood, his community.

These statements, so familiar to everyone interested in rehabilitation, indicate what a very important contribution social service can make to the whole field. The social worker has been trained to consider each individual client in all the complex aspects of the human being—not only as a separate entity with physical, mental, and emotional makeup, but also as a socialized person, an integral part of family, neighborhood, and community. Interpretation of the thoughts, feelings, and actions of one person or group of persons to others is one of the essential services of the social worker. Such interpretation to family, friends, and employers is often of vital importance to the well-being of a handicapped person.

Coordination is another contribution which the social worker can make to rehabilitation, for however successful each part of a program may be, it needs correlation with other parts to make a perfect whole. Rehabilitation, like other fields, is suffering from the present age of specialization. In far too few quarters is the whole series of processes in rehabilitation being considered. Even the social case worker, medical or otherwise, must search for information as to what rehabilitation includes, what its resources are, and how very much it can mean to handicapped persons. Community Councils in all large and

some small cities have information services which can be of invaluable help in guiding both case worker and client to use all available resources for the successful solution of problems. Physicians who are experienced in the service rendered by the social case worker turn to that service for help in the completion of the rehabilitation begun in the medical field. Especially those doctors who are teaching in medical schools should point out to their students the value of correlation of the medical with the social services.

The social worker has the time, the special training, and the skill to help an ill or injured person relieve the tensions which may be preventing his improvement, by letting him talk out his fears, his worries, his frustrations. We all know that a good part of rehabilitation must be done by the handicapped person himself because his feeling about his handicap is almost always the deciding factor in his success or failure as a person. The essentials of success are twofold. Fully as important as physical adjustment to the limitations imposed by illness or injury is the *acceptance* by the whole personality of these limitations. Indeed this latter is often more difficult of attainment than the former—but of what use is the adjustment without the acceptance, if the result is a resentful, thwarted person whose behavior is so inacceptable at home, at work, at leisure that he only makes trouble for himself and others? When both acceptance and adjustment have been achieved, there will be an expansion of limitations, often so great as to surprise both doctor and patient.

The great advances made recently by physical medicine have produced hitherto unheard-of results in adjustment. The social case worker can make an equal contribution to the person who needs help in acceptance. She knows also how to use resources for the development of the whole person which can begin only after acceptance and adjustment have been accomplished. For it is not only in case work that social service is valuable in rehabilitation. In recreation, for example, the group work agencies, either those of the Red Feather or the informal ones of neighborhood, church, or club, have a contribution to make. Many times that contribution will be given much more satisfactorily if the social case worker can interpret the needs of the handicapped person—his deep need to be recognized as the same individual that he was before his handicap; his need to be let alone so that he may prove, to himself and others, his ability to care for himself; and the need for him to accept graciously the help of

his friends when he must have it. If these needs can be understood by the group, the handicapped person will be released to his fullest capacity of enjoyment of recreation and contribution to it. Without this understanding, the experience of individual and group may be an unhappy one.

In the educational field such interpretation should also be available. A handicapped student should be judged by the quality of his work and by its ultimate usefulness. Yet schools have all too frequently pushed handicapped students on to graduation from curricula unsuited to them rather than face the fact that such action, however kindly motivated, means wasted effort for school and student, loss of time and money, and more important than anything else, the tragedy of failure, of profound discouragement, of the blasting of hope. It is too much to demand that schools run for the average student should know the techniques of rehabilitation. Let the social worker give them the suggestions which will make their training of the handicapped person satisfactory to school and student and effective to the community. Even should this mean a complete change of program, perhaps of school, or possibly acknowledgment of the impossibility of school training, the results will be better in the long run.

When the financial needs of an applicant for rehabilitation are paramount, it is well to remember that departments of public welfare are concerned with rehabilitation, particularly since the National Vocational Rehabilitation Act was passed in 1943. With the expanded provisions for rehabilitation under this Act has come the opportunity to provide the means for self-support through rehabilitation of persons on the relief rolls who are eligible for it under the terms of the Act. Certain financial help for clients of the rehabilitation division of the state services can also be given. Rehabilitation workers should, therefore, cooperate with the staffs of the departments of public welfare so that facilities for financial relief and for rehabilitation can be used to the greatest advantage.

Persons presenting unusual problems will need specialized help. Here the rehabilitation center, usually a Red Feather social agency, is equipped to give a combination of services, coordinated by social case work and using technicians in each of its departments. Although the programs of these centers differ in different cities, many of them include the so-called curative shop, which gives physical therapy and occupational therapy by prescription of a physician. As

this service is only one activity of the center, the staff members working in the curative shop see, in their own agency, other processes of rehabilitation which go to make up the whole. Their observations of the mental attitudes and emotions of their patients become as valuable to the record of the patient as does the physical record submitted to the doctor. Both must be considered in the rehabilitation plan. What is sometimes called industrial diagnosis and sometimes exploratory training is a service so helpful to outside agencies that many clients are referred to the center for this study. It is a combination of establishment of degree of work tolerance, of aptitude testing in bona fide job situations, and of ability to get on well with all grades of fellow workers. It helps to locate the points in a job at which a trainee becomes tense and in conflict. Observations of all these matters may be made by several staff members, but they are correlated in staff conference by the social case worker. Following the study of all these observations, a report is made to the referring agency or individual with suggestions for further rehabilitation plans or for other social treatment if rehabilitation does not seem feasible. Again it is often a social case worker who carries out such treatment.

The same method is employed with the instructor-supervisors in the vocational training portion of the center's program. Finally, for the most severely handicapped, the sheltered shop device of providing occupation in the sheltered environment of the center may be used. Here the keen eye and the wisdom of the case worker is even more needed to note signs of improvement in clients from whom little had been expected. For no sheltered shop should lose sight of the fact that it, too, is a rehabilitation device even though wage-earning in competitive industry for its clients is only a remote possibility. That possibility must not be overlooked, and the supervisor must be constantly aware of the necessity for reevaluating with the case worker each individual's potentiality.

As rehabilitation progresses beyond the active medical stage into the exploration of vocational possibilities, the role of the physician seems less active, yet the result of all these observations is submitted to him for his medical suggestions as to further plans and action. The doctor, busy in hospital and private office, can indicate the framework of activities in which the client can safely work. He should not be expected to know the exact demands of the myriad jobs in the wage-earning world. For these details he can safely rely on

the case worker who is placing handicapped people in industry. As the skills of all workers in rehabilitation from physicians to employers become greater, we shall have fewer people who are homebound. Until that time comes, this is perhaps the most rewarding field of all for the social case worker who can recruit and train volunteers for service which may have little relation to training for work in industry but which can tax every particle of ingenuity, energy, resourcefulness, and wisely given sympathy that a worker, volunteer, or professional, is endowed with. Here more than anywhere else is family understanding and solidarity needed. Here is the greatest opportunity, yet the most difficult to fulfill, of bringing out the value of a handicapped person as an individual. Here is the most challenging, most rewarding, yet sometimes most heartrending service to individuals and to their families.

Throughout this program in the rehabilitation centers, as in the hospital, the clinic, and the governmental rehabilitation services of Veterans Administration and the federal-state divisions, the social case worker considers her client as a social individual. Perhaps family problems are preventing progress in rehabilitation. This is an area with which social case workers are very familiar. Visits to the home provide not only helpful social history but also, and more important, the possibility of solving or lessening family problems, again by interpreting the handicapped person to the family and the family to him, or making some environmental changes possible. If the family situation is intolerable, the social case worker mobilizes resources for temporary separation under helpful auspices.

One of the tests of rehabilitation is the success of a handicapped person in a wage-earning job. If he has ability and energy enough to get his own job, so much the better. If he has been properly rehabilitated, he realizes that he must compensate for the limitations of his handicap by the excellence of his work and by his ability to get on well with supervisors and fellow workers. Sometimes, however, his eagerness outruns his discretion, and he tackles a job unsuitable to his limitation. Occasionally he hopes to get by, because of his handicap, with little effort on his own part. He does not realize, or does not care, that he is doing great harm to other handicapped people. Again the social case worker can be of help, perhaps with the individual, almost surely with the employer. But to accomplish this, again she must know and use the resources of her community.

The community organization department of social service, generally a section of the local community council, may be called into action here. This department is likely to have contacts with individual employers and with organized groups of employers and employees. These contacts may be used individually or as a part of a real community organization effort to bring together employers, employees, industrial physicians, physical medicine specialists, and representatives of Red Feather and governmental rehabilitation services to work out a better understanding of the principles of rehabilitation and the necessities of industry. Again, as in the school situation, improved service to individual and community should result.

So far, this article has described social services which are on a basis of work with individuals or with relatively small groups, but well informed public opinion is a powerful factor in any social effort The publicity and public relations departments of community councils and Red Feather funds have proved themselves to be as useful to rehabilitation as to other fields of social work. Their facilities should be enlisted for help and advice in the preparing of newspaper and other publicity releases, in the training and booking of public speakers, and in the building and displaying of exhibits on rehabilitation. We must never lose sight of our work with the individual and must always be striving to improve and perfect our art and skill in this highly important phase of service. On the other hand, we must realize that to advance the field of rehabilitation we must make our whole community aware of the need for it and familiar with its principles, facilities, and aims. To this end we need to use every resource open to us. Social service gives us facilities of incomparable value in case work, group work, community organization, social action, publicity, and public relations. Let us utilize them to the full, so that our handicapped people may lead fuller, happier, more productive lives to the benefit of themselves, their families, and their communities.

VOCATIONAL REHABILITATION OF THE SEVERELY HANDICAPPED *

By ADOLPH G. EKDAHL, D.M.D., Ph.D.

The extent to which traumatism or disease may produce a vocational handicap is not dependent solely upon the severity of the injury or the pathological condition. The subjective factors involved seem so consistently to outweigh the physical that it is difficult to establish objective criteria for determining exactly which disabilities are the most likely to produce severe vocational handicaps. Since it appears to be futile even to attempt to draw too sharp a distinction between the varying degrees of incapacity induced by the hazards of modern warfare, we shall at once proceed to discuss some of the problems that most frequently arise in the vocational rehabilitation of those who are generally characterized as the seriously disabled.

The return of the war veterans from overseas carrying with them the visible scars of battle seems to create in the public at once a definite guilt complex. Motivated by a desire to rid itself of these uncomfortable feelings, as well as by gratitude for the types of services its servicemen alone could render, it soon prevailed upon Congress to pass laws providing these veterans with a variety of pecuniary benefits.

There is no question but what the nation has a clear moral obligation to care for its disabled veterans, but in providing them with a certain degree of financial security a situation is created which usually complicates their readiness to agree upon and enter into a satisfactory program of vocational rehabilitation.

It must be frankly admitted that experience has revealed that the most severely disabled veterans, who are presumably in the greatest

* After twenty-four years of university teaching and clinical experience in psychology, the author joined the Veterans Administration in June, 1944. While his treatment of this topic is based directly on his experience in the rehabilitation of severely disabled veterans, the content, except for the references to facilities available only within the Veterans Administration, applies equally well to civilians.

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need of vocational rehabilitation, are not always particularly receptive to the ministrations of the vocational adviser. There may be many reasons for this negativistic attitude. For example, the concept that idleness is somehow a state to be envied is commonly held by a substantial proportion of the adult population. Since the severely disabled veterans suddenly find themselves economically secure, the incentive of financial necessity is no longer present to spur them on to worth-while achievements.

It is also possible that some severely disabled veterans harbor a fear which, although it may operate only at the subconscious level, leads them to believe that, if they submit to vocational advisement and guidance and the subsequent education or training programs succeed to the point of complete vocational rehabilitation, the end result is likely to be a termination of their disability compensation and a loss of their hard-won economic independence.

It is evident, therefore, that the practice of providing a subsidy or compensation for the veteran suffering from injury or disease, although dictated by humanitarian reasons, does not always result in an unmixed blessing to its recipient. Sometimes it appears even to lift the lid to Pandora's box of human ills. Certain it is that the acceptance of the status of chronic invalidism will inevitably result in disastrous personality changes. Once having adopted this passive role, a veteran, despite the hero he may have been, will at once begin to lose his self-respect in the awareness that he has now become only a liability to human society. Moreover, because he has chosen to detach himself from those of his fellow men who continue to strive to realize their ambitions, he will have relaxed his hold on reality. Not only will he thereafter be denying himself the enjoyment of the fruits of victory through a richer and fuller life, but he will also be in imminent danger of losing his will to live.

Such an attitude is by no means found in all severely disabled veterans. It has been cited simply as a more or less typical situation which must first be corrected by the counselor before vocational rehabilitation can begin.

For the hospitalized veteran the first stage in his over-all rehabilitation is obviously medical care, the second the restoration of physical functioning, the third vocational counseling and the last vocational training. It has been found, however, that it is not always necessary to wait for the completion of one phase before commencing

the next. In fact evidence is accumulating to indicate that the early introduction of vocational counseling and subsequent training is in itself a form of therapy.

Arrangements have accordingly been made for the inclusion of counseling and training in the hospital program through the organization of rehabilitation boards inside the hospitals. These boards are composed of the medical specialists who prescribe the medical treatment, of social workers, and of specially trained vocational rehabilitation and education personnel. By means of cooperative board action, rehabilitation programs are formulated for each individual patient. Such programs are so closely integrated that, whenever it is the judgment of the board that a patient could benefit thereby, all four phases of rehabilitation are instituted to run concurrently.

Particularly successful is the operation of such a plan in a hospital for the tuberculous. Here the vocational counselor confers with the patient just as soon after his admission as it is determined to be medically feasible for him to be interviewed. The result is that, by the time the one-hour work tolerance stage is reached, all preliminary arrangements will have been made so that the patient will be able to spend his daily work tolerance period in training either for the specific vocational objective it has been agreed will become his life career or in a field as nearly like it as training facilities in the hospital can provide.

In one T.B. hospital where this plan is in operation, so attractive was the objective selected and so expertly was the rehabilitation program prepared that the enthusiasm of the patient entering it resulted in the astounding complaint to the hospital manager that "The days are not long enough to accomplish all that I wish to do."

The purpose of hospitalizing a patient is of course to get him well. To some medical men it might, therefore, appear that the inclusion of a vocational rehabilitation plan of the proportions implied above would conflict with a well-ordered hospital regime, especially the type that is so essential to the success of a T.B. hospital. It might be argued also that a T.B. patient cannot afford to become so deeply absorbed in a course of vocational training but should instead devote all his meager reserve of energy to the single purpose of the early restoration of his health.

With close cooperation on the part of the entire hospital staff, such objections are not likely to arise. The chief of the vocational

rehabilitation program scrupulously conforms to and supports the medical therapy program and remains well within the medically prescribed work load limits for each individual patient.

Some of the benefits the T.B. patient derives from early vocational counseling and entrance into training may, therefore, be summarized as follows:

1. *Maintenance of Patient Morale.* When vocational plans are discussed with a patient soon after his admission to a hospital, he becomes convinced that his case is not hopeless but that he is definitely expected to get well.

2. *Alleviation of Boredom, Making Prolonged Hospitalization More Endurable.* It has been said that while hospitalized a patient suffers 10 per cent of the time from the disease and 90 per cent from boredom. When adequate vocational rehabilitation services are available and accepted by the hospitalized patient, this situation is corrected, a result having therapeutic value, since the contented patient admittedly is better able to combat the disease.

3. *Strengthening of the Motivation for Recovery.* When a patient is enabled through the services of the counselor to select an appropriate vocational objective and subsequently enter training, he is given an additional motive for getting well. When he commences training, moreover, the awareness of making progress in his preparation for a life career may actually serve to accelerate complete recovery.

4. *Reduction of the Likelihood of Recurrence of the Disease Following Hospital Discharge.* When a patient has already commenced training while hospitalized or detailed arrangements for his entrance upon training after discharge have been perfected, he will suffer a minimum of disruption of the carefully planned daily regimen he must observe in order to remain well.

In passing it may be stated that the limitations arising from this disability with respect to the choosing of a suitable vocational objective are not nearly as restricting as has generally been supposed. If the tuberculous veteran will only continue to follow faithfully the pattern of life prescribed for him and submit to repeated medical checkups, following hospitalization, his future is likely to be much more favorable than a majority of our population even faintly realize.

For a sizable portion of the very large numbers of disabled veterans whose disabilities are loosely labeled "nervous," early consideration of a vocational rehabilitation program during hospitalization is likewise coming to be recognized as of great value. Since the

conditions found in this group range all the way from those present in the relatively mildly maladjusted neurotic to the bizarre behavior anomalies exhibited by the disturbed psychotic and from the somewhat localized discomforts of those with superficial brain lesions to those with extensive cerebral involvements and their attendant aphasias, plegias, encephalopathies, and convulsive disorders, the need for teamwork procedures in the development of appropriate vocational rehabilitation programs for them is of paramount importance.

The psychoneurotic veteran, however, though often most difficult to rehabilitate successfully, does not very frequently find his way into an N.P. hospital. He is usually processed either through the "Special Rehabilitation Advisement Unit" or the "Rehabilitation Board" established at a Veterans Administration Regional Office. The same principle of cooperative planning in the preparation of the vocational rehabilitation program described above for hospitals is in force in each regional office. But there is open to the vocational counselor no royal road leading to the discovery of the most suitable objective for the neurotic. Reliance is placed on the approved techniques of vocational guidance, with the greatest emphasis obviously given to a most thorough exploration of the personality. In this direction such specialists on the Rehabilitation Board as the psychiatrist, clinical psychologist, and psychiatric social worker make significant contributions.

In his search for an appropriate objective, the counselor will usually choose an array of three or four additional objectives along the way. These are kept in reserve because the neurotic is so fickle and so sensitive to unpredictable situations that may arise in the working environment following his entrance into training that what first appeared to be an ideal choice may prove to lie beyond his reach. If the failure cannot be prevented, a fresh start into training can then be made without loss of time in the next most suitable objective already agreed upon.

If it is determined that ancillary services are needed to assure success in the training program, such as for example those provided in a mental hygiene clinic, these services can usually be arranged to run concurrently with vocational rehabilitation. It is common knowledge that the psychoneurotic often needs the steadying influence of the mental hygienist for an indeterminate period. Through-

out the training program the vocational counselor, the personal adjustment counselor, and the training officer will naturally supply additional therapeutic aid in the mere rendering of their special services.

Finally the crucial test of whether the vocational training program will really be successful is its termination in satisfactory employment. But this crisis will likewise have been anticipated by the Veterans Administration by arranging, either directly or through one of the agencies closely cooperating with it, for the proper placement of the veteran in the field for which he has been trained.

In the planning of a suitable vocational rehabilitation program for veterans with the more severe neuropsychiatric disabilities, the vocational counselor, in consultation with the specialists immediately concerned, makes haste slowly. If a patient with a psychosis is accessible, he may be interviewed by the vocational counselor soon after admission, but he is not referred ordinarily until his acute symptoms have subsided and he has attained a reasonable level of stability.

Meanwhile the vocational counselor has not been idle. By attendance at staff meetings, by consultations with the psychiatrists, and by a study of the clinical and social service records, together with an accumulation of information from other accessible data, he has obtained the background which enables him to make more rapid progress with the patient when he finally is declared ready for an intelligent discussion of his future career.

Working closely with the hospital Chief of Physical Medicine, the vocational counselor may discover a way of directing the patient into a prevocational training course while hospitalized, which would lay a substantial foundation for his training in the selected vocational objective, entrance to which may not be possible until discharge.

Since the psychotic patient is likely to need a somewhat extended period of hospitalization, he will accordingly also have become accustomed to the complete security of a protected existence amidst the quasi-country club accommodations and surroundings usually found in the modern VA N.P. hospital. It will, therefore, be necessary to readjust the patient by easy stages from the life of relative ease, abundance, and freedom from responsibility he has enjoyed while hospitalized to the realism of the world outside. This can be accomplished by assigning definite work projects to the veteran to be com-

pleted within prescribed time limits and eventually keeping him at a job throughout a normal eight-hour working day.

The re-establishment of sound work habits and a willingness to reassume responsibilities for an independent existence is analogous to the development of a work tolerance for the T.B. patient.

A summary of the benefits gained by the establishment of a vocational rehabilitation service within an N.P. hospital would, therefore, seemingly include the following:

1. *Acceleration of Recovery from the Mental Illness.* Consideration of and choosing a vocational objective supplies a meaning to life; it is thus therapeutic in its effect and tends to hasten recovery.

2. *Prevention of a Relapse and Necessary Rehospitalization.* Records seem to indicate that the big majority of patients requiring rehospitalization have been unemployed following discharge. It is logical to expect, therefore, that the fully rehabilitated patient who is immediately placed into a proper job or course of vocational training on discharge, as is done when vocational rehabilitation functions effectively, is more likely to survive.

3. *Elimination of Fear of Failure and Development of a Sense of Security and Recovery of Self-Respect.* Development of "work tolerance" before discharge eliminates the patient's fear and dread of being suddenly at the mercy of his own resources and being faced with the task of achieving the radical readjustment essential to a normal existence outside the protective environment of the hospital. Training for a vocational objective or immediate rehabilitation through proper employment restores self-respect and supplies a solid foundation for the feeling of security.

It is as yet too early to make sweeping generalizations or elaborate claims of what efficient vocational counseling and subsequent training, job placement, and follow-up can accomplish for the psychotic. Suffice it to say that the remarkable success achieved thus far in selected cases, if it can be sustained, promises much for the future.

Each hospital has its quota of patients whose symptoms, though ostensibly due to organic conditions, persist with distressing obstinacy despite orthodox treatment expertly administered. Moreover, the frequency with which this type of patient requests hospitalization and the duration of his hospital stay are seemingly all out of proportion to the severity of the disturbance of which he complains.

In such cases the hospital staff would do well to explore the possibility that the patient has been driven at the unconscious level to choose illness as an escape from an unbearable situation such as failure, or fear of failure, in the struggle for existence. It would be unfair to accuse this type of patient of conscious malingering because his plight is even worse than that of one suffering merely from an organic condition without underlying mental complications. Special consideration is merited by such a condition.

In a VA hospital these patients are now being referred during their convalescence to the vocational counselor, with the result that, in those instances where the vocational problem is solved, the symptoms of the illness promptly subside. This in itself is an important gain, but what is even more striking is the fact that the illness does not recur.

Still another group of disabled veterans requiring long periods of hospitalization consists of those with spinal cord injuries and those with extensive bone, muscle, nerve, and other tissue destruction.

As a preparation for subsequent individual vocational counseling, group counseling has proved reasonably successful with these patients. Many aspects of counseling can be covered in this manner with a saving of time and effort, but perhaps the most important advantage of this approach is the enthusiasm for rehabilitation it may arouse through the opportunity it gives for active participation on the part of the patients themselves.

In many ways the veteran who is severely disabled physically presents unique problems involving personality adjustments directly attributable to the far-reaching limitations his crippled condition has placed upon him. Personality difficulties are of course primarily the concern of the psychiatrist or clinical psychologist, but the vocational counselor must at least be able to detect their presence and understand the manner in which they determine the attitude toward vocational rehabilitation and otherwise complicate the patient's progress in that direction.

It is almost inevitable that the morale of a paraplegic should be low. Many factors contribute to this situation, but they obviously center around the ever-present evidence that fate has dealt him a most cruel blow. The paraplegic, therefore, is the type of case where the services of an understanding chaplain may be of considerable help to the hospital medical rehabilitation board.

By the time a paraplegic is likely to be much interested in a vocational counselor's services, he will be well along in his mastery of the "essential activities for daily living" and able to get out of his wheel chair. These have been no mean achievements and can always be used by the counselor as arguments that by contrast the attainment of vocational rehabilitation should be relatively simple.

The specific techniques at the disposal of the vocational counselor in arriving at the most satisfactory vocational objective for the severely deformed or crippled, however, may need some modification, and resort may even be had to short work experiences. Yet, despite an apparently discouraging outlook, the counselor is justified in proceeding with a certain degree of boldness in his quest for a suitable objective because of the remarkable capacity for compensation invariably present in the individual with a strong will to succeed. Disabled veterans, however, are not so likely to compensate adequately if merely left to themselves; positive guidance and instruction are essential.

It is an axiom of good guidance not to permit a severely disabled individual to choose a vocational objective in which his disability is almost certain to be an insurmountable obstacle to reasonable success. Before any decision is reached, therefore, the rehabilitation board as always makes an exhaustive study of all the pertinent facts. Even though the situation seems all but hopeless upon superficial consideration, when due allowance is made for the patient's willingness to tap his potential reserves and use, let us say, 90 per cent of his capacity, compared to the 25 per cent or less employed by the average individual, the prospect changes. Added to this is also the possibility that ingenious devices may be constructed and supplied to the veteran or attached to the machine he is to be trained to operate that will enable him to overcome fully the limitations of his disability.

Recent developments in the rehabilitation of the hard of hearing have been largely in the medical field. Improvements in electronic appliances have enabled the otologist to obtain more accurate information regarding the nature and amount of the patient's hearing loss and prescribe a far more efficient hearing aid. Techniques and methods used in special restorative training courses involving lip reading, voice correction, and speech retention are also undergoing revision and improvement, particularly at special centers for dealing with aural problems such as that at the New York City VA Office.

Similar improvements in equipment have made the lot of the blinded veteran a happier one. Likewise a number of special centers where the blinded have been given specific instruction and practice in readjusting to the problems incident to daily living have enabled them to approach the problem of vocational rehabilitation and to enter upon a specific program with a greatly improved attitude.

Much of the vocational rehabilitation procedure developed and operated by the VA, at least since 1943, has been a pioneering effort. With the financial resources which have been placed at its disposal for the administration of Public Law 16 of the 78th Congress and subsequent amendments, it has been possible for the VA to establish a rather ambitious program. Yet with modifications as dictated by special conditions there seems to be already ample proof that this type of service would prove equally effective in such institutions as state and county hospitals and result in the salvaging of large numbers for whom no brighter future now looms than semi-invalidism or continuous confinement.

VOCATIONAL REHABILITATION OF THE BLIND

By DONALD H. DABELSTEIN, M.A.

Vocational rehabilitation is a service, provided through a federal-state program, to preserve and restore the ability of disabled persons not only to work but to make their full contribution to the society of which they are a part. Most disabled persons, including the blind and partially sighted, can perform efficiently if prepared for work compatible with their physical condition, aptitudes, and abilities. A person is generally considered blind when that individual has not more than 20/200 of visual acuity in the better eye with correcting lenses; or visual acuity greater than 20/200 but with a limitation in the field of vision such that the widest diameter of the visual field subtends an angle no greater than twenty degrees. Nearly all disabled persons have far more vocational assets than are lost through their impairments, and it is only necessary to develop their remaining skills and capacities, through physical restoration, counseling, training, and placement, to the point of economic usefulness.

Early Efforts to Provide Rehabilitation or Employment for the Blind

Although our present vocational rehabilitation programs for the blind are comparatively new, efforts have been made over a period of many years to find employment for such persons. With the establishment of schools for the blind beginning about 1832, it was realized that just to provide an academic education for blind children would only be partially solving their problem. In fact, trade training has been an integral part of the curriculum in all schools for the blind almost from the beginning, and as there were no agencies for the blind, trades were taught which would make it possible for an individual to carry on his trade in his own home or community by what is usually referred to as self-employment.

Because of the inability of many of these persons to succeed in such employment without some assistance, special workshops were established to provide employment for those blind persons who had been trained. For many years the only opportunity for employment for blind persons was in these workshops or in self-employment. Although there are isolated instances of blind persons who received employment in competition with the seeing, the realization that there were limitless employment opportunities came about with the advent of the first World War, when in Ohio, Massachusetts, and New Jersey a considerable number of blind persons were placed in industrial jobs with a reasonable degree of success. These and other efforts to adjust blind persons into employment, although limited in scope, were sufficient to demonstrate conclusively that blind persons if provided with necessary services and assistance could be rehabilitated into employment commensurate with their talents, skills, and abilities.

Development of the Federal-State Program

The Vocational Rehabilitation Act of 1920, a publicly supported program for the vocational adjustment of physically disabled civilians, had its inception in this country when the Vocational Rehabilitation Act was approved by Congress on June 2, 1920, and funds were appropriated to be used by the states. The original Act was renewed periodically from 1920 until 1935, when, with the passage of the Social Security Act, vocational rehabilitation was placed on a permanent basis and federal financial participation considerably increased. By 1939, all forty-eight states, the District of Columbia, and the Territories of Hawaii and Puerto Rico had established vocational rehabilitation programs.

Although permanency of the program was assured and federal financial participation increased, the services available for rehabilitation of disabled persons were confined to counseling, vocational training, provision of prosthetic appliances, and placement. As a result, only a selected portion of the physically disabled could be rehabilitated into employment through these services (4). That this condition is particularly applicable to the blind is evidenced by the fact that, during the fiscal years 1935-1943, only 1,779 blind persons were reported as rehabilitated into employment by the state agencies (4). The blind constituted between 1 and 1⅛ per cent of all

disabled persons rehabilitated. These results on the other hand are readily understandable to those familiar with the program during this period. Limited funds, services, and personnel and a lack of understanding of the employment potentialities of the blind prevented the attainment of an effective program for the blind. With few exceptions, provision of the specialized type of rehabilitation needed by the blind was not possible under the program during this period.

In 1936 Congress enacted Public Law 732, commonly referred to as the Randolph-Sheppard Act. This Act authorized blind persons to operate vending stands in federal and other buildings, where in the judgment of the federal departments controlling the buildings such vending stands could be satisfactorily operated by blind persons. The responsibility for the administration of the program was placed in the Office of Education, where a small unit of Services for the Blind was established within the Division of Vocational Rehabilitation. State Commissions for the Blind or some other state public agency was designated to issue licenses to blind persons to operate vending stands. Under this program as of June 30, 1948, over 400 blind persons have been licensed and are now operating vending stands within federal buildings throughout the United States. As a result of the impetus provided by this program of licensing blind persons to operate vending stands in federal buildings, it is estimated that at least 1,200 retail businesses have been established by the state agencies in nonfederal buildings and other properties. The Randolph-Sheppard Act also authorized the Commissioner of Education to make surveys of industries to secure information which would assist blind persons to obtain employment. As a result, placement procedures were developed which enabled state agencies to place a considerable number of blind persons in a variety of industries. This successful demonstration resulted in upwards of 5,000 blind persons being employed in wartime industries, performing a wide variety of jobs in which their production record not only equaled but usually exceeded that of their fellow sighted workers.

Vocational Rehabilitation Act Amendments of 1943. Recognizing the limitations of the existing legislation and the unmet needs of the disabled, as well as the manpower potentialities of this group in the war emergency, Congress in July, 1943, enacted an amendment to the Vocational Rehabilitation Act of 1920, known as the Barden-LaFollette Act, Public Law 113, 78th Congress.

Under the provisions of this Act, all services necessary for disabled persons to become employed or to become more advantageously employed on a normal competitive basis were made available. Furthermore, the mentally as well as the physically handicapped are eligible for services. Specific provision was made for the blind, for war-disabled civilians, including merchant seamen, and for civil employees of the United States government injured in the performance of duty. Vocational rehabilitation for veterans whose disabilities are of service-connected origin or aggravation had already been provided under a separate program administered by the Veterans Administration. However, veterans with nonservice disabilities are eligible for rehabilitation services under the civilian program.

Federal fiscal provisions were considerably liberalized under the new law. The federal government is now permitted to assume the necessary state administrative costs and the cost of vocational counseling and placement. The cost of medical treatment, training, and similar services for handicapped persons is shared by the state and federal governments on an equal matching basis. The cost of services to war-disabled civilians is fully reimbursable by the federal government. The enactment of the Vocational Rehabilitation Amendment represents the first national and comprehensive vocational rehabilitation program for the blind and has been hailed by many as the Magna Carta of the blind (2).

Extent of the Problem

In order to throw light upon the scope of the problem, the following facts concerning the national blind population are essential. As with the case of other types of disabled persons, accurate data as to the number of blind persons in the United States are not available.

Most reliable estimates indicate that there are at least 230,000 persons of both sexes in the United States who come within the accepted definition of blindness. As nearly as can be determined, approximately 50 per cent of this number are over sixty-five years of age. This is an important fact, since the objective of vocational rehabilitation is to render disabled persons fit to engage in remunerative employment. It is recognized that opportunities for employment of sighted persons over sixty-five years of age are extremely limited under the most favorable conditions. Of the 115,000 under

sixty-five, there are assumed to be about 98,000 blind men and women within the age group fifteen to sixty-four.

Of these 98,000 adult blind, about 50,000 are male, and it may be assumed that they would be employed except for their disability. Of the females, about 10,000 would be in the labor force except for disability, assuming that the ratio of those gainfully employed to the whole number would be approximately the same as in the sighted, nondisabled female population. Thus there are about 60,000 blind persons in our population at any one time who are in need of vocational rehabilitation services and who might be rendered self-supporting. In establishing this goal it must be recognized that new opportunities for the blind must be discovered.

Administration of the Program

The Office of Vocational Rehabilitation, a constituent unit of the Federal Security Agency, is responsible for the administration of the vocational rehabilitation program. As such it coordinates the services and activities for the civilian disabled and is responsible for leadership, for the establishment of standards in the various areas of the service program, for technical assistance to the state agencies, and for the certification of funds for grants-in-aid to those state agencies with operating plans which meet the requirements of the authorizing Act of Congress. Effective July 16, 1946, responsibility for the administration of the Randolph-Sheppard Act was assigned to the Office of Vocational Rehabilitation. As a result, all vocational rehabilitation activities for the blind are now concentrated at the federal level in a single agency.

In order to provide services to state agencies providing vocational rehabilitation to the blind, there has been established within the Office of Vocational Rehabilitation a section known as Services for the Blind with a staff of specialists, some of whom are without sight, to provide assistance to state agencies. One of the great problems confronting state agencies providing vocational rehabilitation services to the blind has been the difficulty in securing trained personnel. One of the major activities of the Section of Services for the Blind includes specialized training of personnel engaged by the state agencies in the placement of blind persons. As of July, 1948, eight courses, with a total enrollment of seventy-two, had been conducted

for blind persons engaged to place blind rehabilitants as employees in industrial plants. Three courses had been held for thirty-seven state agency personnel engaged in placing blind persons in business enterprise programs. One course had been conducted for eleven persons engaged in placing blind persons in agricultural activities.

One of the major functions of the Office of Vocational Rehabilitation has been to coordinate the activities of all voluntary and official agencies concerned with the rehabilitation of the blind and of sighted disabled persons. This function is achieved primarily through the formulation of cooperative agreements designed to stimulate similar relationships at the state and operating level. Relationships of this character have been established with practically all national agencies for the blind.

Professional guidance is furnished for the program by several advisory committees. The National Rehabilitation Advisory Council is composed of outstanding representatives of services to the blind in business and industry, labor, education, medicine, social welfare, and other interests closely allied to the problems of rehabilitation. The national professional advisory committee is composed of representatives of the medical specialties most actively concerned with the adjustment of all types of disabled persons. A third group, the executive committee of the States' Vocational Rehabilitation Council, composed of eight state vocational rehabilitation agency directors and two directors of agencies for the blind, cooperates with the Office of Vocational Rehabilitation by serving in an official advisory capacity regarding the formulation of federal policies and standards which pertain to the states and the promotion of harmonious and effective relationships. It is the policy of the Office of Vocational Rehabilitation to call on various committees of the National Council of Executives of State Agencies for the Blind for advice and assistance in the formulation of special policies applicable to the blind.

Administration by State Agencies

The states actually operate, supervise, and control the vocational rehabilitation services, including services to the blind. Rehabilitation services for the blind are administered by commissions or other agencies for the blind wherever state laws authorize these special units to provide such services. In other states, vocational rehabilita-

tion for the blind is included as a responsibility of the general rehabilitation agency which functions as a unit of the state board of vocational education. As of June 30, 1947, all forty-eight states, the District of Columbia, and the Territories of Hawaii, Puerto Rico, and Alaska had approved plans for participation in the program. In thirty-five of the fifty-two programs, the rehabilitation program for the blind is administered by the state agency or commission for the blind.

The administrative organization of state agencies or commissions for the blind varies from state to state, depending primarily upon population and the availability of state funds. In general these agencies contain a full-time employee in charge of vocational rehabilitation, a medical consultant, district supervisors in the more heavily populated states, rehabilitation counselors, and placement specialists. The placement personnel may be divided into four divisions: industrial, business enterprises, professional and clerical, and rural activities.

In the general rehabilitation agency the administrative organization is similar to that in the agencies for the blind. In some states, however, the rehabilitation counselor serves both the blind and the sighted, whereas in others special counselors are assigned to work exclusively with the blind. The general agencies likewise employ placement specialists for the blind. As of July 1, 1948, a total of 231 individuals were listed as placement specialists for the blind; all but four states listed such positions. Of the 231 listed, seventy-six were known to be blind.

The state agency staffs provide the services such as investigation, vocational diagnosis, guidance, counseling, and placement and make use of all the existing facilities in the community and surrounding area for other necessary services. The state agencies purchase, or make arrangements to obtain, the services necessary in the rehabilitation process from existing facilities such as schools, workshops, hospitals, and clinics. No determination of economic need is required for a blind person to receive most of the rehabilitation services. The blind person pays nothing for his medical and ophthalmological examination, guidance, counseling, training, or placement. To the extent that his financial conditions will permit, however, he is expected to pay for all other services, including medical treatment and surgical or psychiatric care, hospitalization, nursing care, and pros-

thetic appliances; occupational tools, licenses, and equipment; and transportation and living expenses.

The Rehabilitation Services

As has been previously implied, the needs of the blind lie in many fields such as health, education, welfare, and placement. In order for them to make their contribution to society, they need these services on a coordinated basis. The blind, like other persons, have many problems—problems which they cannot solve for themselves, and which need to be solved not as individual unrelated problems but as one large problem, approached from the standpoint of the individual as a whole. It is this integrated approach which is considered in the vocational rehabilitation program for the blind.

Vocational rehabilitation service involves five basic factors, all or part of which may be required for the successful adjustment of the blind individual. In order to give a picture of the rehabilitation service, these factors are presented as steps in the rehabilitation process and are summarized briefly in the following paragraphs.

Case Finding. The first step is that of finding the individual as soon as possible after the onset of blindness so that rehabilitation may begin before he is unduly subjected to the disintegrating effect of idleness and hopelessness.

Case Study. A second step involves a thorough and comprehensive case study of the blind applicant as a total personality. A thorough general medical and ophthalmological examination, together with such special and laboratory examinations as may be indicated, are provided each applicant to be used in determining eligibility for service and in ascertaining capacity to meet the physical demands of employment. Before a client can be counseled or assisted in the selection of a vocation, it is essential to secure information from which to diagnose his aptitudes, interests, motives, physical health, emotional balance, and other characteristics which facilitate or inhibit satisfactory adjustment to preparation for or placement in employment.

It is essential to have an understanding of the techniques and methods employed by the blind in overcoming some of the inconveniences accompanying blindness, for example, dressing, eating,

traveling, meeting people, and similar activities. Although experienced persons engaged in work for the blind recognize the importance of being able to perform these activities, nevertheless there exists no substantial body of information about the most frequently employed and effective methods for use by the blind. It is not only the absence of this type of information but also ignorance of the most efficient methods of acquiring these skills that the Office of Vocational Rehabilitation and the state agencies are attempting to overcome in developing adjustment techniques. Several state agencies have established adjustment centers for this purpose, and consideration is being given to the establishment of a National Research and Adjustment Center by the Office of Vocational Rehabilitation.

COUNSELING. Counseling is the next basic step in the rehabilitation process. Counseling in vocational rehabilitation of the blind is not a single act but a continuing process that binds all the other services into an organized, coordinated plan in terms of the needs and characteristics of each blind individual. It begins with the initial interview and runs through to the satisfactory placement in employment of the individual. Progress has been made in the development of counseling techniques for the blind, including the use of tests and other devices that are effective with the sighted.

PREPARATION FOR EMPLOYMENT. Vocational rehabilitation is defined as "any service necessary to render a disabled person fit to engage in remunerative employment." Reference has been made to physical, ophthalmological, and psychological examination, medical and vocational diagnosis, and counseling as services which are fundamental to the rehabilitation of each blind individual. The provision of services beyond this basic framework depends upon the specific needs of the individual. As has been indicated, these services may include any one or combination of the following: medical and psychiatric treatment, surgery, hospitalization; occupational, physical, and work therapy; prosthetic devices, personal adjustment, prevocational and vocational training; maintenance, transportation, occupational tools, licenses; and equipment, placement, and post-placement adjustment. Several states operate workshops and adjustment training centers. The states maintaining these facilities, however, are in the minority. Instead, arrangements and contracts are negotiated for the purchase of these services from existing facili-

ties which meet standards established by the state agency. It becomes necessary, therefore, to draw upon a wide variety of community and state resources. The rehabilitation agency must know specifically what resources to draw upon and obtain whichever services may be needed to prepare each blind individual for employment.

Training continues to remain one of the major services utilized by the rehabilitation agencies in preparing the blind as well as other disabled persons for employment. Perhaps this is because, for the period 1920-1943, training constituted the basic rehabilitation service available under the Act and therefore this part of the program was more developed than other parts and its value better understood. By and large, every attempt is made to utilize existing training facilities in training the blind for employment. This is particularly true in preparing the blind for professional and clerical occupations. Until recent years, however, very limited use has been made of the public and private vocational schools. Within the last few years the blind industrial placement specialists have been instrumental in acquainting vocational school instructors with the proper methods and techniques for training the blind.

In many instances it has become necessary to arrange suitable modification of existing training or to stimulate the establishment of an entirely new training opportunity in order to meet the specific needs of a particular client or to prepare a group of applicants for a relatively new vocational outlet. Illustrative of these practices are the arranging of on-the-job training in industrial establishments and the organization of special training programs in workshops for the blind.

Carefully selected training, occupational, or work therapy has a therapeutic value in developing in the client a consciousness of power and ability to achieve and in giving his individuality a chance to assert itself as well as to develop work tolerance and habits. It also provides the blind person with an opportunity to compensate in constructive ways for those characteristics which are unalterable and to reduce to a minimum any feeling of inferiority or "differentness."

PLACEMENT. The goal of rehabilitation is regular and appropriate employment of the client, in industry, government, agriculture, commercial or professional occupations, or in any type of self-employ-

ment, in an occupation consistent with his ability and at an income commensurate with that of other workers in similar occupations. This frequently represents a most difficult assignment and may require surmounting many obstacles either in effecting employment or assuring its continuance once a placement is obtained. Placement of the blind necessitates intimate familiarity with the specific tasks of jobs, occupational opportunities and trends, techniques of placement, compensation laws, accident prevention, and methods of overcoming employer prejudice against employment of the blind. Following placement, contact must be maintained to make certain the client has acquired the skills necessary to continue his employment, is adequately adjusted to his employment and working conditions, and is safeguarded against exploitation or discrimination. With the blind these contacts are continued for an extended period of time.

Overcoming employer prejudice against employment of the blind is one of the major problems in placing blind labor. Placement of the blind becomes a highly individualized process. For this reason, it is the practice in the majority of the state agencies to employ specialized personnel for placement purposes. In larger state programs the areas of placement specialization generally include industrial, commercial, and business enterprises, professional, clerical, and rural. In the smaller states these areas may be combined into one or two.

Of the four major specialties referred to, blind persons are generally employed as industrial placement specialists (1). It is the major function of the industrial placement specialist to sell top management on the acceptance of blind workers, make surveys of industrial plants to select jobs which can be performed without sight, demonstrate to the employer the jobs which can be satisfactorily performed without sight, and place blind persons on the jobs selected as a result of these activities. It is the opinion of many workers for the blind that a qualified blind industrial placement specialist, trained in the survey of industrial plants and in giving demonstrations, is more effective than a sighted or partially sighted specialist in placing blind persons in industrial employment. The majority of placement specialists for areas other than the industrial are usually sighted or partially sighted.

Program Results

An indication of the contribution which the vocational rehabilitation program makes to the welfare of the nation through the rehabilitation of blind persons can be obtained from a summary of the blind who have been rehabilitated. Within the fiscal periods 1944-1947, reports from the state agencies indicate that slightly upwards of 6,000 blind individuals have been rehabilitated into employment (3). The number rehabilitated during each of the fiscal periods follows:

Year	*Number*
1944	988
1945	1,497
1946	1,335
1947	2,193
1948	2,600 (estimated)

These results represent a striking increase over the number of blind persons rehabilitated during a comparable period prior to the enactment of the Vocational Rehabilitation Amendment of 1943. For example, during the fiscal periods 1935-1938, a total of 544 blind persons were reported as rehabilitated. During the fiscal year 1947 alone, more than four times as many blind persons were reported rehabilitated as in the period 1935-1938.

The results achieved during the fiscal period 1947 strongly indicate that the vocational rehabilitation program for the blind has hit its stride and is now moving forward at a rate exceeding that for the nonblind disabled. The number of blind men and women rehabilitated during 1947 represented an increase of 64.3 per cent over the corresponding total for the preceding year, in contrast to an increase of 21.5 per cent for the nonblind group.

Within the period of increased employment, blind workers have already demonstrated to employers and public alike that when placed in employment at which sight is not required, the blind can compete on an equal basis with sighted employees. The record of absenteeism and labor turnover for the blind is generally superior to that of sighted workers, and it has been demonstrated that they are not prone to accident.

One of the most striking outcomes is the economic return that accrues to the blind as a result of the vocational rehabilitation pro-

gram. Of the 3,528 blind persons rehabilitated during 1946 and 1947, 79 per cent were unemployed at the time of applying for rehabilitation services. Only 21 per cent were receiving a wage at the time of application. The rate of total annual earnings for the group of 3,528 before rehabilitation was estimated to be approximately $836,000. For the first year after rehabilitation the rate of total annual earnings for the group increased to an estimated $4,560,000. These estimated annual earnings do not include the earnings of farmers and of family workers, which were impossible to obtain. The increased total annual earnings not only represent an increase of about 445 per cent in the earned income of the group of rehabilitants, but also constitute an increase of about $3,724,000 in the annual earned income of the nation.

From a purely monetary standpoint, vocational rehabilitation for the blind is a sound financial investment in the conservation of human resources. For every person permanently disabled some form of support must be provided. In the past this has too often meant public or private assistance, a temporary palliative, at an average yearly cost per individual of $300 to $500. The cost of maintaining the vocational rehabilitation program—blind and nonblind—averages about $400 per rehabilitant, a nonrecurring expenditure. Furthermore, the total cost of rehabilitating the 3,528 blind persons will be more than repaid in a short time to the state and federal governments in the form of income and other taxes which these men and women will be able to pay from their earned incomes.

Each time a blind person is prepared for employment—rehabilitated—we add a productive unit to industry and promote the welfare of our people.

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THE AMERICAN RED CROSS IN VETERANS ADMINISTRATION HOSPITALS

By MARJORIE H. FRANK

The American National Red Cross, universally recognized for its assistance in war and in time of disaster, has long been engaged in the less known, less dramatic, but perhaps even more vital work of rehabilitation. Because the Red Cross in America is an organization of the people and for the people, its helping hand is everywhere, but this article will focus directly on participation in the Veterans Administration hospital program, a program aimed toward rehabilitation of the veteran patient. The Red Cross, through its men and women volunteers, is of great help in this phase of rehabilitation, for it provides the vital factor of a steady exchange of liking and understanding between the hospital and the community, between the veteran patient and his neighbor in the town.

At the request of the Veterans Administration and working always in close agreement, the national organization of the Red Cross has assigned paid staff to Veterans Administration hospitals. The main job of these field directors is to coordinate the work of volunteers from the Red Cross chapters in the surrounding communities who serve each hospital. In many cases it has been necessary to maintain two professional staff members and even three or four in large hospitals whose extensive volunteer programs must be kept running smoothly. This staff is responsible for finding out the needs of the various hospital departments and then helping chapters recruit volunteers with the particular aptitudes to meet those needs. They coordinate and plan with the various hospital departments and the Red Cross chapters courses in volunteer orientation, programs, schedules, and assignments. The Veterans Administration fully realizes and has acknowledged the usefulness of men and women who voluntarily give their time in the hospitals or in their community for the good of the veteran patient: "Today more than ever before the volunteer has a specific role in the Veterans Administration hospital program. The volunteer is now a worker, assigned

to a well-defined task in a specific hospital program. The Veterans Administration hospital has become a part of the community, and the citizens of the community are actively assisting Veterans Administration staff members in their endeavor to provide the best possible service to hospitalized veterans." *

Nathan S. Kline, M.D., Veterans Administration Hospital, Lyons, New Jersey, comments on the value of this service in an article which appears in the present book.

Volunteers with a special skill or interest have been found to give the most sustained and enthusiastic service. The man or woman who has been a teacher rarely misses a scheduled assignment at the hospital, so great is his interest in communicating his own knowledge and interest in a particular subject to a receptive patient. Volunteers with musical talent focus their attention on reaching as many patients as possible with their programs of singing, listening to records, or learning to master an instrument. Those who have particular hobbies such as chess, photography, or stamp collecting can be counted upon to maintain their enthusiasm for continuing these interests within the hospital. Skilled athletes and skilled craftsmen further these interests among the patients on a continuous basis. All these volunteers with special abilities or skills seem to stick to the job more than the man or woman who wishes to serve but has no particular avocation or enthusiasm. Of course, the personality of the volunteer is another highly important factor. The wholesome, warm, outgoing individual not only gets along well with other volunteers and the hospital staff but is much more successful in encouraging patient participation. It has been found most helpful to have a psychiatrist or a psychologist participate in selection and interviewing of prospective volunteers in neuropsychiatric hospitals.

Each volunteer is asked to promise a minimum of fifty to 100 hours a year. In-service training is scheduled regularly so that the volunteer keeps pace with changes in the hospital program. Hospital staff members often participate, giving detailed information on the functions of their own departments.

Group recreation, such as parties and dances, is encouraged, but particular stress is laid on individual attention. This person-to-

* *Veterans Administration Technical Bulletin* 6-47.

person plan not only holds the interest of the volunteer but pleases and benefits the patient. A well-organized recreation program continues on a daily basis for all wards, even for the acute service in neuropsychiatric hospitals. Volunteers are stimulated to encourage patient participation to the highest degree. When responsive patients are started on a game, volunteers focus attention on those who seem to withdraw. Red Cross field directors and volunteers are on a constant lookout for new games with which to interest the patients. Dancing classes, community singing, plays, and musical shows with the patients participating are regularly sponsored.

Volunteers are of great service to many other departments in the hospital as well as the recreation department. They are assigned to the library, where they help in the regular routine, even covering the library at times in the absence of the librarian. They read to patients and hold discussion sessions on various subjects. Volunteers who show enthusiasm for the athletic program participate in activities such as golf, tennis, croquet, badminton, softball, swimming, archery, fishing, and skiing.

There are two types of craft program in Veterans Administration hospitals, occupational therapy and manual arts therapy. Occupational therapy differs from manual arts therapy in that it offers medically prescribed activities, determined by the emotional and physical needs of each patient and based on purely therapeutic values. The degree of perfection reached by the patient in his work is relatively unimportant; the real objective is to contribute towards curing his emotional or physical disability. The manual arts therapy program is directed towards the exploration, direction, and preparation of the individual for vocational training and placement in an industrial or trade activity. This program is in accordance with the individual interests and needs, providing on-the-job training, refresher training, and exploratory trade experience.

Volunteer recruits for these two departments are interviewed at the community level by the Red Cross chapter and by a representative of a museum or craft school to determine their qualification and knowledge of particular crafts. Often the chapters hold craft courses to train additional volunteers. After acceptance by the hospital and completion of the orientation course, these volunteers work under the direct supervision of the Veterans Administration Occupational Therapy and Manual Arts Therapy Departments. Those skilled in

ceramics, woodworking, metal work and jewelry, painting, plastics, leather, and weaving seem to be most in demand.

Red Cross volunteers communicate their skills not only in the occupational therapy clinics but directly on the wards. They work with ambulant and with infirm or bedridden patients. A great deal of preparation work must be done for this type of crafts instruction, since many of the men are not physically able to handle such aspects of the work.

A report from one neuropsychiatric hospital where 179 patients were enrolled for courses in vocational subjects stated:

Besides assisting the Manual Arts Therapy department in teaching simple and artistic crafts, volunteers are used in this program also to assist in carpentry, cabinetmaking, upholstery, textiles, printing, machine shop, sheet metal, photography, electricity, radio, art leather, shoe and luggage repair, graphic arts including blueprint reading and mechanical drawing, precision casting, and art metal work.

In the graphic arts and mechanical drawing shop volunteers are now teaching blueprint reading, mechanical drawing, sign painting, lettering, and design. In this shop as in many others, patients who are newly assigned by doctor's prescription may still be in some state of mental confusion. It is with these men that volunteer workers can be particularly helpful. These patients may require almost constant individual instruction for some time. Much as the instructors might wish to give a great deal of personal attention to these men, it is impossible with the number of patients in the class to give all the individual instruction desired. But, with sufficient volunteer aid, much personal help can be given to the patient who is a bit slow to learn as well as to the man who may advance quickly to a higher degree of skill than his fellow students.

Volunteers who have been experts in dressmaking are now readapting their skills to fit the more commercial methods used in the textile shop. With a few lessons of instruction in operating power machines, rather than their home model, and cutting dozens of garments from patterns at one time instead of the usual single dress, they prove to be of great help in this commercial sewing shop.

In addition to these volunteers who serve regularly, specialists who can come to lecture on the job opportunities and latest methods in various trades are being located through the various chapters to talk to the patients. One of the local chapters stimulated the interest of the head of the graduate school of a local college of engineering, who visits the hospital regularly. Through the interest and contacts of just this one volunteer, arrangements are being made for teachers from vocational

schools and local business experts to give lectures and help advise the patients in their future plans for study and job opportunities after their discharge from the hospital.

Many donated items are being collected for work in these shops. Radios in any condition are needed for use in teaching radio repair, and many dozens of these as well as small motors and many other items have been collected and donated to this program.

The teamwork between the paid workers and the volunteer enables the hospital to give far more concentrated attention to the patients.

Another department to which volunteers are assigned is Educational Therapy. Patients may study any course in which they are interested, and Red Cross has recruited teachers for most of the requested subjects.

Quoting again from another report from a Veterans Administration neuropsychiatric hospital:

Volunteers have become of great value in developing rapport with patients, stimulating interest in the retraining area, and in general reducing a patient's tension and anxiety in merely being an objective and understanding audience to his problems. They guide and instruct individual patients in typewriting, shorthand, bookkeeping, business subjects, English, social science, and mathematics. The academic level runs from basic educational needs for illiterate patients through to college level work. Many volunteers are equipped with special interests and skills such as journalism, design, and scientific background. Every opportunity is seized to enable a volunteer to employ this specialty in the program. For example, the specialty in journalism is promoting patient contributions for the local hospital biweekly publication. In addition to being a valuable supplement to the regular instructor staff, the volunteers have contributed a wholesome atmosphere by their daily presence in the classrooms. Patients respect the "Gray Lady" uniform, they enjoy the daily association with people from "outside." The increased individual supervision results in a corresponding stimulus of a patient's feeling of being an individual—a goal in psychotherapy. This is evident from the patients' increased attention to their personal appearance, the spontaneous display of courtesy by some patients, and the gradual responsiveness of heretofore seclusive individuals.

As a result of a request from the education department of another neuropsychiatric hospital, volunteers formed a club among the women patients. A report from the Red Cross staff at this hospital stated:

At the initial meeting, the girls discussed various interests the club might follow and set up quite a flexible outline. One girl suggested music appreciation and offered to prepare a short program of records each time. Everyone is going to prepare a brief book, magazine, or movie review for the next meeting, and one hobbyist will discuss photography. A guest speaker on current events, music, etc., is planned for each month, with a fashion show suggested for a later date. The patients will alternate in serving as hostesses at the meetings. The Gray Lady who is advising the club hopes the members will be stimulated to read books, listen to music, attend the beauty parlor, and take an interest in their clothes—the latter two particularly on the days when each is serving as hostess.

When we were approached by the Chief of Educational Therapy, about the possibility of a graduation ceremony for education students, we thought it an excellent idea and offered our cooperation. We were given a list of the twenty-nine patients with the credits they had earned and wrote congratulatory notes on graduation gifts procured through the Red Cross Community Service Committee. After the formal ceremony of speeches and the presentation of certificates, cake and punch were served by Gray Ladies and each student received a gift. There was no question of the patients' enjoyment of the whole occasion.

The Medical Service in many of the hospitals asks that volunteers be directly assigned to individual psychiatrists for special work with certain patients. Taking active roles, Gray Ladies often participate in psychodrama. They also attend psychotherapy groups which are closely supervised by the psychiatrist in charge. Under the guidance of the psychiatrist they help in the postoperative education of leukotomy patients on a daily basis. Reports from psychiatrists and volunteers cooperating on this particular work are most enthusiastic. Volunteers work on the acute intensive treatment service and assist in the electric shock and insulin therapy programs. They play music, direct simple games, or converse with patients before their shock treatment and assist in the feeding afterwards. Dr. W. J. Turner, psychiatrist of the Northport Veterans Administration Hospital, Northport, New York, wrote to the Red Cross:

In the insulin service, patients emerging from coma frequently pass through phases of early life. In these, one man needs a smiling face; another a soothing maternal voice and hand. In all, the re-establishment of contact with reality is made easier and a wholesome return is favored by the presence of Gray Ladies. Another part they play here is the

selection of suitable record music to provide an easy and emotionally satisfying awakening.

In the psychosurgery program, which is rather intensive at this hospital, the interest shown by the ladies who have devoted themselves to this program has resulted in what might well turn out to be a major contribution. With a thumb nail sketch of the patient's personality and the problem presented, these ladies have developed an educational program, which begins with elementary speech mechanisms, advances by degrees through the uses of vocabulary, symbolic constructions, up to the ways of the outside world in everyday life, correct manners, and practices in ethical reasoning. As we know how far from accepted customs the patient is who has been approved for leukotomy and how great is his need of re-education, we look upon the program of the Gray Ladies with warmest approval.

This assignment of the volunteer to medical staff for a particular type of work with individual patients is also a vital part of the Red Cross program in general medical and tuberculosis hospitals and wards.

Red Cross volunteers are by no means always women, as this article may so far seem to have indicated. Many men volunteers have been recruited to participate in programs, particularly in neuropsychiatric hospitals. In one such hospital in Massachusetts over 100 men were serving in 1948. Side by side with women volunteers they work in the Occupational Therapy, Manual Arts Therapy, and Educational Therapy Departments. They actively participate in sports with patients at the hospital and in the community as well.

The actual number of volunteers required grows constantly as the different programs expand. At one hospital in 1948, Red Cross was sending in over 400 volunteers a month, and more were being recruited. All are capable, trained men and women, giving regular service. They come from distances as great as fifty miles away.

One of the most valuable contributions that the volunteer makes to the patient's welfare is to help him feel a part of a community—a major factor in rehabilitation. Active participation is needed to foster a patient's interest in community activities. The Red Cross Motor Service transports patients from the hospital on sightseeing trips, to picnics, baseball and football games, to plays and musicals. They drive the men to bowling alleys, to ski slopes, to tennis courts,

and to dancing classes in the town. A report from one hospital described such an outing:

Stamp Club members were guests one evening this month of the Bell Telephone Stamp Club in Boston. Besides the party atmosphere, which the patients enjoyed, they gained many new ideas from looking over the display, such as specializing in ships, birds, animals, etc. Some of the patients have already begun specializing in preparation for their next exhibit at the hospital. Another idea for artistic members was a ship made entirely of stamps. The Club secretary, who is very interested in crafts, duplicated the idea the next day with a stamp bouquet of roses against a textile painting design which has been framed and hangs in the volunteers' room where the Stamp Club now meets one evening a week.

Many patients attend meetings of the Rotary, Lions Club, and other community organizations or have entered into civic contests such as "model home" contests. Radio quiz programs with joint patient and community participation seem to be mutually enjoyed. Red Cross-sponsored visits to industries have resulted in many patients acquiring jobs in the community. From another hospital report:

Patients selected by the Veterans Administration vocational adviser were taken on a tour of a life insurance company. Arrangements had been made by the Red Cross chapter and a Red Cross Gray Lady acted as hostess-guide for the tour, driven by the Motor Service of the chapter. The men went through all the departments of this huge company, which employs thousands of clerical workers. In the mailing department, they made plates with their names on them; they were received by the secretary of the company in his office and met the personnel man, who invited the vocational adviser to get in touch with him in the future in placing well patients on jobs.

As guests of the company the men ate lunch in the employees' cafeteria and were delighted to have the "sky the limit" and then be joined by a young woman of the company who is also a Gray Lady. . . . A similar visit to another industry followed the same outline—complete tour of the plant, lunch as guests of the management, then a ride through Forest Park, followed by ice cream cones on the way home.

To summarize Red Cross aid in the various phases of rehabilitation of the Veterans Administration program, one last point should perhaps be brought out. It has been emphasized that the work of

volunteers in the hospitals benefits the patient, not only by "bringing the breath of home" inside hospital walls but by making the patient feel more a part of the community. Stress also has been laid on the definite help volunteers can be to a busy professional staff. The value of the volunteer's interpretation to his community of the needs and functions of the hospital has been implied. But underlying all these values is the real compensation the Red Cross volunteer himself receives in terms of a mature inward satisfaction. With gradually increasing confidence and skill, the individual volunteer assumes more and more responsibility towards his job in the hospital program and thus becomes a small but important contributor to the field of rehabilitation.

VOLUNTEER WORKERS; RECRUITMENT, SCREENING, TRAINING, AND MANAGEMENT *

By NATHAN S. KLINE, M.D.

The gift of a white elephant has proverbially proved embarrassing. Only three basic courses of action are open to the recipient of such a gift: it can be refused with profuse apologies; it can be accepted and placed in a cage for all to admire; or it can be utilized to pull its own weight and prove a great asset. To many hospitals, the proffer of volunteer services is like that of the white elephant. This article is written with the hope that it may aid in solving this usually undiscussed, but very real, problem.

In this era of severe shortages, none has been more acute than the personnel shortage. To refuse well-intentioned and potentially competent assistance merely because of inexperience in handling such problems as may arise is the least desirable of the three courses. Accepting volunteers indiscriminately without proper selection, orientation, training, and assignment, results in a wandering of a herd of these "white elephants" through the corridors, and the swaying trunks and clumsy feet will sooner or later cause serious damage. A general plan for dealing with volunteers is herewith presented in an effort to show how they can be integrated into an over-all program. In many cases, not only can volunteers assist in routine tasks, but they also can offer services of a unique type that have a therapeutic value all their own.

Need for Volunteers

The relationship of volunteers to regular paid employees calls for some words of caution. A volunteer must never replace a regular employee except in the briefest of emergencies. Reductions of

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regular staff by using volunteers not only leads to employee resentment but may seriously endanger essential services when for any reason volunteer services become scarce. On the other hand, employees worth their salt have already visualized how the efficiency of their departments could be greatly augmented if only additional assistants or co-workers were available. A volunteer program should aim in part to provide this very type of additional personnel. On the other hand, there are certain types of volunteers who cannot bear to be assistants or even co-workers. They must "run the show." The method of dealing with these individuals is discussed under "Screening."

Trepidation that Mrs. Bigg, whose husband is president of Super Colossal, Inc., will not condescend to act as assistant to an employee who may be receiving less salary than her butler, is actually groundless. The urge to do something useful (which is so often thwarted in the wives of successful men) orients the volunteer in terms of accomplishment, rather than monetary return. The regular employee may at first look askance at a volunteer bedpan emptier who has nine servants at home, but when these employees find the ward running more smoothly, the patients receiving extra detailed care, and time, which did not formerly exist, now available for them to spend more time exerting the special skills which they possess, the skepticism will vanish.

The interest of the volunteer worker often brings a new pride to the regular employee in the performance of duties which have become mere dull routine, and it is not surprising to find a whole department functioning with "increased tonus" because of the presence of a single volunteer worker.

The patients themselves have frequently shown improvement that can be accounted for only by the presence of the volunteers. Too often, especially in long-term or chronic hospital patients, a state of undeclared guerilla warfare has been reached, in which the patient adopts an attitude of "passive nonresistance" with occasional pot-shot sniping to relieve the monotony. The presence of the volunteer may call forth constructive exertion from the patient. The personal appearance and manners of the patients may improve following the injection of volunteer workers into a ward. Often, too, the patient may have more in common, emotionally and socially, with the volunteer worker than with a hospital employee, so that the patient's

interests may be strongly stimulated with the resulting effort to "get back home" which sometimes spells the difference between therapeutic success and failure.

An often unremarked but extremely important aspect of a volunteer program in a private or community-supported institution, in contrast to a Veterans Administration hospital, is the effect on the community itself. If inadequacies of equipment or personnel do exist, public attention is frequently brought to these matters, and in a most effective quarter, since the volunteer worker group often contains representatives of the elements most active politically in the local community. If Assemblyman X's wife, a volunteer worker, tells him about the patient whose diagnosis had to be left in doubt because of insufficient X-ray equipment, it will very probably make a deeper impression than the request for additional funds based on the hospital budget. Mrs. Joiner, who, in addition to being a volunteer worker, is also vice-president of the Thanatopsis Sewing Circle, may well start a drive for a new ward or a new piece of equipment. The public support of hospitals achieved in this manner is no small matter. In the case of mental hospitals, not only is the need for financial support brought home to the community, but—and this is equally important—the ordinary citizen receives some much needed education in the nature of mental disease.

If the hospital is that *rara avis*—an institution that needs no additional financial support, is possessed of adequate equipment, and, if a mental hospital, is situated in a community that is already enlightened about mental diseases—then, certainly, there could be no objection to volunteer workers at least singing loud hosannahs about the wonders of the place.

Some functions cannot be carried on very well without volunteers: motor trips, away-from-the-hospital parties, and other off-station activities. How fully these may be utilized is described below under the development of the volunteer program at the Veterans Administration Hospital at Lyons, New Jersey.

Selection and Screening

The indiscriminate acceptance of all volunteers is an extremely dangerous procedure. Screening is necessary not only to protect the hospital but also to protect the individual from himself. Physi-

cal disabilities or mental instabilities may often be accentuated by the performance of unsuitable duties. The application of volunteers at indiscriminate times throughout the year is also to be discouraged, since it places an unnecessary burden on the hospital. It is well to have definite periods—perhaps an interval of one week every three months—during which volunteers will be accepted. This alleviates undue confusion and taxing of the time of hospital personnel.

It is also extremely expedient to adopt a procedure that allows for a certain amount of pre-selection. This can be accomplished by encouraging the potential worker to apply through some community organization that has established connections with the hospital. This serves at least a threefold purpose: first, the director of volunteer services of the local organization can give the inquirer a fairly detailed, relatively unbiased picture of the nature of the volunteer work. This may not be what the potential worker wishes to do, and self-elimination, without a waste of hospital time, may occur; second, it may be obvious to the interviewer for the community organization that the candidate is not suitable, and time may be saved by the individual being actively discouraged at this point; third, effective control can be exerted over the volunteer through the parent organization. Regular attendance is more likely because of esprit de corps, or a desire to avoid the disapproval of fellow volunteers of this same organization. Transportation to and from the hospital is much more easily arranged for the group.

At selected intervals, the local organizations can supply volunteer workers as the need arises. Within the hospital itself, it is definitely necessary to assign responsibility to one individual on the regular hospital staff, who should not only be aware of the hospital's needs but should continue to be responsible for the volunteer services as an assigned duty. If the hospital is sufficiently large, some sharing of responsibility may be necessary, but there should still be a designated individual who is ultimately responsible.

After the need for certain types of volunteers has been ascertained, the community organizations can be contacted, and, after recruiting, pre-selection can be exercised. Arrangements can then be made to interview the entire group from one organization on a certain day. The director of volunteer services—or assistants—can then inter-

view each applicant and obtain information of the following type * unless already obtained by the chairman of the local organization:

QUESTIONNAIRE

1. Miss, Mrs., Mr.
2. Address
 Telephone Number
3. Date of birth
 Place of birth
4. What foreign languages can you speak?
 What foreign languages can you read?
5. Can you provide your own transportation to and from the hospital if necessary?
 How many others can you accommodate?
6. Check your educational background:
 (a) High School (b) Business School
 (c) College (d) Major subject
7. Have you ever done hospital volunteer work before?
 What type? Length of time?
8. Interests and Training:
 (a) Have you ever belonged to a dramatic society?
 (b) Do you like to read aloud?
 (c) Can you play a musical instrument?
 (d) Can you sing? Direct group singing?
 (e) Can you teach any type of dancing?
 (f) Have you experience in directing games?
 (g) List games in which you are proficient (either indoor or outdoor) ..
 (h) With what types of handwork or crafts are you experienced?
 (i) What types of discussion groups, if any, have you conducted?
 (j) Have you had any library experience?
 (k) If you have had any teaching experience, in what subjects is it?
9. Can you type? Take dictation?
10. Have you had any training or experience in social work?
 If so, describe briefly
11. Availability:
 (a) Can you come throughout the year?
 (b) Will you be out of town at certain seasons?
 When?
 (c) Can you serve any day during the week?
 Can you serve in the evenings?
 Can you serve Saturdays?
 Can you serve Sundays? Holidays?
 (d) How many hours can you serve weekly?

This information should be available to the director of the hospital's volunteer services before the applicant is even seen. It is also advisable to set a minimal annual hourly requirement which the

* This preliminary questionnaire follows in part the excellent application procedure of the American Red Cross for the hospital and recreation corps service in Veterans Hospitals in the North-Atlantic area (under Marjorie H. Frank, Director of Services in Veterans Hospitals).

volunteers must serve, and to which they should agree prior to acceptance. It should be stressed to the potential volunteer that additional screening will occur for the protection of both the hospital and the applicant. It may be well to describe briefly the type of activities in which volunteers participate. This preparation of the volunteer for what is to come provides a means of avoiding possible hard feelings later.

The immediate impression, upon considering the fairly elaborate screening which the volunteer must go through, is that even good potential candidates would be discouraged. Actually, at Lyons, the opposite is found to be the case: if a relatively high standard is set for the volunteer workers, they will not only be more respected by the regular hospital employees but will have much greater respect for themselves. As a rule, not much prestige or self-satisfaction is attached to a job which "just anyone" can perform. The volunteers who meet the initial requirements and take the complete orientation course, pass the final screening, and survive the probationary period, feel that there has been real accomplishment and this results in a greater pride in their work and consequently better performance.

At the time of the interview with these potential volunteer workers by the director of volunteer services (after initial screening by the volunteer's own organization), notation is made of any individuals who appear unstable or seem otherwise unsuitable for volunteer work. This list is eventually transmitted to the medical interviewer. After each of the applicants has been interviewed as to his or her qualifications, the next step is a written examination. Standard personality tests may be useful, especially when followed by competent psychological interviews. We have found it expedient to conduct a test of our own, which while aiming at eliciting personality defects and "attitudes," is primarily an educational instrument. In a mental hospital, the attitude of the volunteer worker is a primary consideration. Attitudes that deviate grossly from the normal are suspected, and the discovery of a general misconception which almost all the volunteers have in common provides an excellent lead for a discussion in the orientation course. The "test" is not used to "pass" or "fail" a volunteer but serves primarily as a point of departure for the psychological interview. The "correct" answers are given to the volunteers as part of their orientation, and

this is an excellent basis for questions from the group, with further orientation and education resulting.

Since over half the hospital beds in the country are for mental patients, the presentation of our screening device may be of some general interest.

TRUE-FALSE TEST FOR VOLUNTEERS *

NAME: DATE:

The following test is composed of a number of statements—some true and some false. Each statement is followed by the letters "T" and "F." Read each statement carefully. If the statement is true, circle the "T." If the statement is false, circle the "F." Answer all questions.

1. Unusual behavior and peculiar ideas are always present in all mental patients.	T	F	(1)
2. People who like to work around mental patients are usually somewhat mentally queer themselves.	T	F	(2)
3. Mental disease is not contagious.	T	F	(3)
4. Most mental patients are oversexed.	T	F	(4)
5. It is very difficult to insult or offend a mental patient.	T	F	(5)
6. I have had a nervous disorder.	T	F	(6)
7. People who work around mental patients often become ill themselves.	T	F	(7)
8. All mental patients are very much alike.	T	F	(8)
9. In order to work successfully with mental patients, you should first win their confidence.	T	F	(9)
10. Many people feign insanity to receive government support.	T	F	(10)
11. Knowledge of mental disease is not harmful to well-adjusted, normal people.	T	F	(11)
12. I have been under treatment for a nervous condition.	T	F	(12)
13. There is much that can be done for mental patients aside from administering to their physical wants and hoping they will get well.	T	F	(13)
14. Insults and obscene language are invariably found with mental patients.	T	F	(14)
15. Mental patients should be sterilized before being allowed to leave the hospital.	T	F	(15)
16. One should pay no attention to requests from mental patients, since they do not know what is best for them.	T	F	(16)
17. Some mental patients have a real sense of humor.	T	F	(17)
18. When dealing with patients in a mental hospital, one should remember that they are different from normal people in their thinking and feeling.	T	F	(18)
19. Mental disease is hereditary.	T	F	(19)
20. I have been a patient in a mental hospital.	T	F	(20)
21. Nervous people are often helped by working in a mental hospital.	T	F	(21)

* Developed by the author and Mr. Harry Hyman, Mr. Philip Goldberg, and Dr. Bert D. Schwartz of the Psychology Department of the Hospital.

22. Mental disease is not more definitely prevalent in one race than another.	T	F	(22)
23. It is unnecessary to win a mental patient's confidence as he mistrusts everybody anyway.	T	F	(23)
24. Most mental patients are curable.	T	F	(24)
25. In working with mental patients, a sympathetic attitude is more important than an understanding of their disease.	T	F	(25)
26. Most mental patients are homicidal.	T	F	(26)
27. Punishment often convinces a patient that he should behave more normally.	T	F	(27)
28. I have changed jobs frequently because of physical or mental ailments.	T	F	(28)
29. Wealthy people very seldom have mental illnesses.	T	F	(29)
30. Masturbation is one of the principal causes of mental illness.	T	F	(30)
31. "Everybody is a little crazy" at times, and all of us have had serious doubts about our sanity at one time or another.	T	F	(31)
32. Most mental patients appreciate favors that you do for them.	T	F	(32)
33. All mental patients like to be by themselves and resent interruptions and intrusions from outsiders.	T	F	(33)
34. I am subject to frequent blue spells or sick headaches.	T	F	(34)
35. You can usually tell whether a man is insane by the look in his eyes.	T	F	(35)
36. Mental patients are really sick like other patients in other hospitals.	T	F	(36)
37. The actions and speech of most mental patients are revolting and disgusting to a person of fine breeding.	T	F	(37)
38. Once a person has been mentally ill, he can never lead a completely normal existence again.	T	F	(38)
39. I consider myself a rather high-strung person.	T	F	(39)
40. Some mental patients do not require kindness and consideration.	T	F	(40)
41. Most mental patients come from the slums.	T	F	(41)
42. Mental patients need more punishment and criticism than normal people because they do not understand what they are doing.	T	F	(42)
43. I often complain of various physical ailments.	T	F	(43)
44. Demanding mental patients should be ignored.	T	F	(44)
45. People who lead immoral lives often go insane as a result.	T	F	(45)
46. Mental patients have feelings and emotions like other people do.	T	F	(46)
47. Many insane people are really criminals and are not sick.	T	F	(47)
48. People consider me a healthy, well-rounded person.	T	F	(48)

The test is scored by presenting the scorer, who need not know anything about the test, with a key copy in which atypical answers are circled and a numerical rating is assigned to each question. Only incorrect answers are scored, and the total atypical point score is obtained. Certain items are considered "stop items" and all individuals answering any of these in an atypical manner are interviewed in detail, regardless of total score. The scoring is as follows, with the number of questions in Column I, the atypical response in Column II, and the point score rating in Column III.

Item number	*Atypical response*	*Point score*	*Item number*	*Atypical response*	*Point score*
1	T	1	25	F	3
2	T	2	26	T	2
3	F	3	27	T	3
4	T	2	28	T	5
5	T	2	29	T	2
6	T	5	30	T	3
7	T	2	31	T	2
8	T	1	32	F	2
9	F	2	33	T	2
10	T	1	34	T	5
11	F	1	35	T	3
12	T	5	36	F	2
13	F	2	37	T	1
14	T	1	38	T	2
15	T	3	39	T	5
16	T	2	40	T	2
17	F	1	41	T	1
18	F	2	42	T	1
19	T	1	43	T	5
20	T	5	44	T	1
21	T	1	45	T	1
22	F	1	46	F	3
23	T	1	47	T	2
24	F	2	48	F	5

Items 6, 12, 20, 28, 34, 39, 43 and 48, are considered "stop items" if the answer given was atypical. The fact that the efficacy of the "stop items" depends upon the volunteer's veracity is a common failure of almost all screening devices of the pencil and paper type. Rather than attempt to "trick" the subject into possible contradictions, it is felt that giving sufficiently strong motivations for answering questions truthfully is the more desirable course.

This can be done by a brief preliminary talk in which the volunteers are thanked for their good will in appearing for the examinations, followed by an explanation that the hospital in return desires to protect the potential volunteers from assignments which may prove detrimental to them and without their full cooperation in answering the items on the examination truthfully that would be impossible.

A total point score of 20, or more, also necessitated a detailed interview. Using a team consisting of a psychologist and a psychiatrist, it was possible to interview approximately thirty-five individuals an hour. Those potential volunteers whose atypical point score was below the "cutting point," and who had not been designated by any of the "stop items" were interviewed by the psychol-

ogists only. A brief one or two minutes' discussion was all that was necessary in most cases, and those who seemed to the psychologist to present special problems were also seen by the psychiatrist. The psychiatrist also saw those volunteers who had been caught on "stop items" and who had high atypical point scores. Sometimes immediate judgment could be made as to the volunteer's potential usefulness, but if not, sufficient time could be devoted to the individual for a real exploration of his suitability. The few hours of staff time devoted to this particular screening have been considered very well spent.

The announcement of acceptance or rejection of the applicants can very well be left to the local organization through which they applied, thus relieving the hospital of a possibly unpleasant and embarrassing duty. Most of the recruiting organizations find it advisable to stress that possible volunteers may be rejected, not because of unsuitability, but because the particular services they offer are not needed at that particular time.

Thus far, a fairly adequate "cross section" of the potential volunteer has been obtained. Before definitely accepting the individual, we have found it wise to also obtain at least a brief "longitudinal" view of the individual, and this can be accomplished during the period of orientation. For example, we found that one individual was much impressed by Question 35 and spent the next few days during orientation staring unabashedly, and with no attempt at concealment, at the patients, trying to get a good look at their eyes (which startled some of them considerably).

At the termination of the orientation course, a second examination is given covering the subjects discussed during the orientation lectures. This provides some measure of the volunteer's adaptability and ability to assimilate new material. It is only after this examination that the local organizations are informed as to which of their members are accepted as full-fledged volunteer workers.

Orientation

The following subjects are discussed in a three-day orientation course which all volunteer workers attend after preliminary screening is successfully completed.

I. Introduction
Purpose of Training Institute
Manager *
II. Neuropsychiatry
Mental and emotional aspects of psychiatric illness
Chief of Professional Services
III. Understanding the neuropsychiatric patient
Psychiatrist
IV. Communicable diseases and their treatment
Chief Surgeon
V. Hospital etiquette and ethics
Chief Nurse
VI. Psychiatric social work
Chief Social Worker
VII. Occupational therapy
Chief Occupational Therapist
VIII. Special Services †
Chief of Special Services
IX. Chaplaincy
Hospital Chaplains
X. Athletics for psychiatric patients
Physical Director
XI. Library service
Chief Librarian
XII. Recreation and entertainment
Music Director
Dramatics Director
Recreation Director and Staff
XIII. Written examination
True and False
Essay type questions

A copy of the schedule of lectures is given to each of the potential volunteers and serves the secondary purpose of impressing upon them how important their work is considered to be. For a general hospital, the subjects would of course differ somewhat, but the same general plan could be followed. The part that volunteers play in all these activities is naturally stressed.

If at all feasible, arrangements should be made for the potential volunteers to go on a conducted tour of the hospital. This, too, helps the individual gain some idea of his or her niche in the scheme of things.

* The physician-director of a Veterans Administration Hospital is called the manager. Dr. H. E. Foster was the Manager of the Hospital at Lyons; Dr. L. G. Sewall was the Clinical Director at the time this article was written. At present Dr. C. N. Baganz is Manager and Dr. P. Weitz is Chief of Professional Services.

† Special Services includes recreation, sports, chaplaincy, library, and canteen.

Volunteers in Action

Considering the fact that the Veterans Administration Hospital at Lyons, New Jersey, is relatively isolated, being ten to fifteen miles from the nearest communities of any size, the amount of time spent at the hospital by volunteers and the size of their contribution is almost staggering. Each month, between 6,000 and 7,000 volunteer hours are spent at the hospital,* and during the course of a year, the value of equipment and other material contributions made to the hospital amount to over $200,000. Fifty-three different organizations contribute, directly or indirectly, to the hospital voluntary services program.

The manner in which 1,500 volunteers contributing their services each month are managed may very well be of interest to other hospitals contemplating the innovation or enlargement of their own volunteer service facilities. The representatives of voluntary service organizations on The Hospital Voluntary Service Advisory Committee coordinate all the volunteer activities of their respective organizations through the chairman of this committee (who at our hospital is also Chief of Special Services). Special Services also has charge of the athletics, chaplaincy, library (both medical and patient), entertainment, recreation, and canteen. In addition to an assistant for the Chief of Special Services, there is one person in charge of all recreational activities. There are also four assistants to the Director of Recreation (one for music and the other three general assistants). All these individuals have other regularly assigned hospital duties aside from the volunteer part of the program, which occupies on an average one to two hours every day of their time.

Unskilled Workers

There are two types of volunteer workers—the skilled and the unskilled. Between 1,100 and 1,200 unskilled volunteers contribute time each month, making a total of about 3,000 volunteer hours, exclusive of time spent in transportation to and from the hospital. The activities of these unskilled workers may be broken down roughly as follows:

* There are approximately 2,200 patients at the Veterans Administration Hospital at Lyons, New Jersey.

1. Ward Parties. Except for the extremely disturbed patients, there is an average of one party on each ward every week. After years of experimentation, it has been found that a certain ratio of volunteers to patients is desirable on different types of services, and for the benefit of those who may be interested, they are listed briefly:

a. On Infirm or Acute Services, with less than 100 patients on the ward, six to eight volunteers are used.
b. On a Chronic or Non-Acute Service, or one made up largely of psychoneurotics with less than 100 patients, fifteen volunteers are used.
c. On Semi-Acute Services with 100 to 200 patients, again, fifteen volunteers is about the optimum number.
d. With wards above 200 patients, between twenty and twenty-five volunteers furnish the best services.

As a rule, the parties are given in the evening, but on wards where the patients go to bed very early, the party may be given in the afternoon.

On Infirm Services, where there is a small patient turnover, and where it "means something to see a familiar face," the same group is encouraged to return each week. On wards with younger and more active patients, an effort is made to rotate the volunteers, giving the parties so that the patients may meet as many different individuals as possible. The assignment of wards to various groups depends not only on size but also on how much an organization plans to spend, and since the wards in our own hospital range from forty to almost 500 patients, there is quite a difference. Ward parties can be run as cheaply as from 25¢ a patient (cigarettes, ice cream, and cookies) up to $1 a patient or more. Some of the ward parties have included an orchestra, door and game prizes, paid entertainers when volunteers were not available, etc., as well as transportation cost to and from the hospital for the volunteers, which must be thought of in financing a party.

2. Recreation Hall Parties. To these parties all the "privileged" patients (those having ground parole) are invited, as well as all the patients on the Reception Service, and those receiving shock therapy, if approved by their ward doctors. There is usually a Bingo game which requires eight to ten volunteers among the older women, who supervise the party. At the same time, the party for

the closed-ward patients, which includes dancing, games, and refreshments, requires the services of fifteen to twenty of the younger female volunteers.

3. DANCES. Twice a month a dance is given on the hospital grounds to which approximately 170 patients are invited. A certain number of patients are prorated from each ward. For this number of patients, a minimum of eighty hostesses, and a maximum of 120, as dancing partners, have been found most desirable. These volunteers provide their own transportation, as well as refreshments, an orchestra, and usually some sort of door prize—if nothing more than cigarettes.

4. OFF-STATION PROGRAMS. It is impossible to list all the off-station activities, but in addition to dinners, theaters, movies, concerts, and dances, there are many special events. For example, 150 of our patients were taken to the World Series last year, and a number to the Army-Navy football game. There are approximately eight trips a week which take care of 140 patients. Transportation to and from these events is usually furnished by the hospital or by the Red Cross Motor Corps.

The usual procedure for dealing with groups of these unskilled volunteers is through their "hospital chairman" or her "delegate." This individual confers at frequent intervals with the Director of Recreation as to hospital policy, ethics, and procedures. The fifty-three different organizations who contribute to this group are listed, since they may very well suggest reservoirs of volunteers whose services have not been tapped in other hospitals.*

* Organizations contributing to the volunteer program: Air Raid Wardens, Inc., Zone 8, Irvington, American Legion Auxiliary (comprised of 297 units), American Theatre Wing, American Red Cross, American Veterans' Committee, American Women's Hospitals Reserve Corps, American War Dads, American War Mothers, American Women's Volunteer Service, Beta Sigma Phi, Billiards Association of America, Blue Star Mothers & Wives of World War II, Blue Star Mothers of America—Union Chapter No. 1, B'nai B'rith, Catholic War Veterans Auxiliary, Collite-Tungsten, Inc. (Department X), Community Concerts—Plainfield and Morristown, Daughters of America, Daughters of Union Veterans of the Civil War, Disabled American Veterans (approximately 20 units), Emblem Club No. 72, Ex-Presidents Club (American Legion Auxiliary), Fidelity Guild, Gold Star Mothers, Griffith Music Foundation, Industrial Union of Marine & Shipbuilding Workers of America (CIO), International Brotherhood of Teamsters, Jewish War Veterans (approximately 50 units), Knights of Columbus, Madison Square Garden, Inc., Marine Corps League, Mary Meyers War Mothers, Masonic Service Association of the United States, Military Order of the Purple Heart, Military Order of the Cooties, Morning Club—Ladies Auxiliary, Morris County Fair Association, Mountain Lakes Choral, National Broadcasting Company, Navy Mothers, New Jersey

Skilled Workers

The relative importance of the contributions of any one local organization varies from hospital to hospital; but at the Veterans Administration Hospital at Lyons, New Jersey, the American Red Cross is the greatest source of skilled workers. During a typical month, approximately 300 trained volunteers donate a part of their time, making a total of over 3,000 hours a month. The distribution of the services of these trained volunteers for a typical month is as follows:

RECREATION. This includes ward parties, music groups, birthday parties and presents for each patient, interviews with all new admissions as to interests, hobbies, etc., discussion groups on the tuberculosis ward, feeding of breakfast to patients on the shock wards, provision of three packs of cigarettes a week to each indigent patient, the manipulation of book projector machines, outside games when weather permits, and the helping of visitors. Ninety-four Gray Ladies devoted a total of 1,425 hours to this activity exclusive of their transportation to and from the hospital.

MEDICAL REHABILITATION. Trained teachers are provided to help with typing, bookkeeping, remedial reading and writing, social sciences, commercial art, applied sciences, and mechanical drawing. This group also assists in minor surgery, in mending rubber gloves and preparing swabs, dressings, and other equipment, as well as feeding infirm patients. A total of fifty-five Gray Ladies (forty of whom also worked on the Recreation Services) contributed a total of 573 hours.

ARTS AND SKILLS. These workers are under the direct supervision of trained occupational therapists. Some of the volunteers do diversional and tonic crafts, while others work with the functional crafts, on the basis of a prescription provided by the psychiatrist.

Federation of Music Clubs, New Jersey Garden Clubs, Order of Elks, Order of the Eastern Star, Packanack Civic Club, Parent Teachers Association, Patriotic Cheer Workers of America—District No. 10, Psychology Club of Junior Centenary College, Salvation Army, Silver Link Rebekah Lodge No. 85, Sixty Club—Social Club, Jersey City, Sons of Union Veterans of the Civil War, Stadium Concerts, theaters —ten in nearby communities, Theta Rho Club, Townley Choral—Elizabeth, New Jersey, Veterans of Foreign Wars (approximately 100 units), U.S.O. Camp Shows, Inc., Urban League of Eastern Union County, Walther League (a church group from Paterson, New Jersey), Westminster Choir College, Wright Aeronautical Corporation, Women's Forum of Washington Valley, Women's Relief Corps.

These activities include the direction of weaving, ceramics, leather work, metal work, painting, applied design, etc. Twenty-six trained volunteers contributed approximately 500 hours during an average month.

PRODUCTION CORPS. The routine assigned duty of this group of volunteers is the mending of patients' clothing. Approximately thirty volunteers donated a total of 150 hours during a typical month, but in addition, within the chapters, an unknown number of hours were devoted to the preparation of drapes, slip covers, and other equipment for the hospital.

CANTEEN SERVICE. On the two weekly visiting days, the volunteers from the Canteen Service provide refreshments for both the visitors and the patients. In addition, they sponsor weekly off-station dinners for selected groups of patients. Fifty volunteers donated about 150 hours.

STAFF ASSISTANTS. These workers assist in the filing of clinical records, in the Social Service Department, in the library, and elsewhere about the hospital where needed. Approximately 150 hours were served by the sixteen workers.

MOTOR CORPS. The time spent by this group of volunteers is difficult to calculate, but in addition to the transportation of the other volunteer workers to and from the hospital, forty-six trips were made, in a typical month, which were for the benefit of the patients alone. In the fall of the year, about 200 men are taken to football games every month, 100 on scenic tours or visits to commercial plants, 125 roller skating, 80 to parties, etc. The hours contributed by these workers are not included in the total given.

OTHER SKILLED WORKERS. In addition to the trained workers provided by the American Red Cross, about fifty skilled workers are provided by the American Legion, the Disabled American Veterans, the USO, and other organizations, including ten music volunteers. Their work includes bedside visits to patients, card playing, assistance in assembling the hospital's patient-newspaper, letter writing, reading, and other services of a personal nature which the patients need. The music volunteers provide music for listening, in the form of vocalists, pianists, trios, etc., and visit as many wards as possible. They also assist in the teaching of music and, if some patient is inter-

ested in an unusual instrument, an effort is made to obtain someone to assist in instruction. The USO volunteers recruit and supervise entertainers for off-station parties. (This does not include the paid USO workers, or the entertainment provided.)

The magnificent contribution that volunteer workers have made and are making to the Veterans Administration Hospital at Lyons conclusively demonstrates that, with proper selection, screening, orientation, and management, such a program can make a major contribution to any hospital.

Summary

1. The acceptance by a hospital of volunteer workers not only meets emergency needs but also inspires regular employees to new interests in their work, allows these employees to devote more time to the application of their special skills, arouses new interests in the patient which often spell the difference between therapeutic success and failure, and finally provides the public of the local communities with a knowledge of the specific needs of the hospital, with support frequently forthcoming. In the case of mental hospitals, some of the very necessary public education about mental disease results from information spread by well-oriented volunteer workers.

2. The desirability of screening all potential volunteers is emphasized. A program of preselection by application through hospital-affiliated organizations, specific techniques of screening, an outline of indoctrination, and suggestions for organization within the hospital are presented.

3. The magnificent work of the volunteer workers at the Veterans Administration Hospital at Lyons, New Jersey, in providing 6,000 to 7,000 volunteer hours of work each month and donating equipment and other supplies to the value of over $200,000 a year is described. The manner in which the volunteer services are organized at this Veterans Hospital is presented in detail.

(Appreciative acknowledgment is made to Mr. J. E. Whitford, Miss Pearl I. Dossett, and Mrs. Isabel Twombly of the Special Services Department and to Miss Florence Patenaude of the American Red Cross, who are largely responsible for the excellence of the Volunteer Program at the Veterans Administration Hospital at Lyons, New Jersey. Without their assistance this article could not have been written.)

PART V

EDUCATIONAL AND PSYCHOLOGICAL TRENDS

THE DISABLED VETERANS OF WORLD WAR II; ANALYSIS OF 600 CASES EXAMINED AT HARVARD UNIVERSITY *

By AUGUSTUS THORNDIKE, M.D.

Since the termination of hostilities, many sick and wounded veterans have been returning to universities to complete the requirements of their college and graduate-school academic assignments, under the G. I. Bill (Public Law 346) and the Rehabilitation Bill (Public Law 16) of the 78th Congress. The disabled veteran has been epitomized in the press, radio, and motion pictures, and although much is sponsored for his good and although many benefits have been provided for him by a generous government, it seems appropriate to call attention to what a group of 600 disabled veterans in one of our universities represent in the way of disabilities.

Harvard University has negotiated a contract with the Veterans Administration whereby all students enrolled under Public Law 16 are cared for by the Hygiene Department. The responsibility for the entire health and sickness program provided in this law applicable to Harvard students is delegated to the university health department. It is true that very few doctors appreciate the fact that the students receiving benefits under this law are entitled to free care for medical and surgical conditions, whether service-connected or not, and that each of these veterans is entitled to the free filling of medicinal prescriptions at the pharmacist's, as well as to free eyeglasses and to free medical consultation service. Through the professional staff of the Hygiene Department and through its board of consultants in the specialties of medicine, a complete medical service is provided free for the disabled veteran at Harvard University. The professional fees of the consultant board are computed at the Blue Shield fee-schedule rate and billed to the Hygiene Department, the University being

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reimbursed by the Veterans Administration. Hospitalization, when required, is provided in the college infirmary for minor medical and surgical conditions, and for major illness or injury at a Veterans Administration Hospital when beds are available or at the general hospitals in Boston affiliated with the Harvard Medical School.

TABLE 1. DISABILITIES AMONG 600 VETERANS EXAMINED AT HARVARD UNIVERSITY

Combat-Incurred Disabilities	No. of Cases	Percentage
Bone-and-joint wounds	84	30.0
Superficial wounds	72	25.7
Neurosurgical wounds	27	9.7
Amputations	27	9.7
Frostbite	18	6.4
Thoracic wounds	14	5.0
Abdominal wounds	11	3.9
Plastic-repair wounds	8	2.8
Ophthalmologic wounds	5	1.8
Ear, nose and throat wounds	5	1.8
Urologic wounds	4	1.4
Oral and dental wounds	3	1.1
Vascular surgical wounds	2	0.7
Total	280	
Noncombat-Incurred Disabilities		
Medical disease	146	37.9
Orthopedic conditions	87	22.6
Neuropsychiatric conditions	52	13.5
Trench foot	34	8.8
Neurologic conditions	13	3.4
Vascular conditions	10	2.6
Ear, nose, and throat conditions	8	2.1
Ophthalmologic conditions	7	1.8
Deafness	5	1.3
Plastic surgery	5	1.3
Dermatologic conditions	6	1.5
Cancer	5	1.3
Abdominal conditions	3	0.8
Dental conditions	2	0.5
Urologic conditions	1	0.3
Thoracic surgery	1	0.3
Total	385	
Multiple surgical diagnoses		27
Multiple medical diagnoses		16
Surgical and medical diagnoses		22
Total		65
Total diagnoses		665
Total cases seen		600

Noncombat-Incurred Disabilities

In an analysis of 600 consecutive examinations of disabled veterans, it is apparent that a large group of noncombat-incurred disabilities were received in line of duty. With corrections for multiple diagnoses, the noncombat-incurred disabilities represent 60 per cent of the entire group. Perhaps of even greater significance is the fact that 38 per cent of these disabilities were due to medical disease (Table 1). Furthermore, an additional 23 per cent—an even greater number of men than that of those who had combat-incurred bone and joint wounds—were caused by orthopedic conditions. Perhaps as the result of screening by the Board of Admissions, neuropsychiatric disabilities do not loom large in this group.

TABLE 2. NONCOMBAT-INCURRED DISABILITIES FOR WHICH COMPENSATION HAS BEEN GRANTED

Medical Disease	No. of Cases
Malaria	35
Cardiovascular disease	34
Gastrointestinal disease	24
Allergy	22
Thoracic disease	12
Rheumatoid arthritis	10
Central-nervous-system disease	8
Diabetes mellitus	1
Acrocyanosis	1
Total	147*

* In 1 case more than one diagnosis was made; hence the actual total of patients is 146.

If one considers the noncombat-incurred disabilities from a practical point of view, it is obvious that many of these men have reached the optimum recovery point. Table 2 presents the pathologic entities for which disability compensation has been granted. It is not practical to list all the orthopedic conditions involved in the grant of compensation (Table 3), but pes planus, internal derangements of the knee, and back strains represent 50 per cent. Most of the patients are not incapacitated from accomplishing their academic assignments and require no further medical treatment, even though they still receive disability compensation. In other words, the government appears to be maintaining certain disability allowances beyond the

TABLE 3. NONCOMBAT-INCURRED ORTHOPEDIC CONDITIONS INVOLVING COMPENSATION

Location	No. of Cases
Upper extremity	18
Back	25
Lower extremity	45
Total	88*

* In 1 case more than one diagnosis was made; hence the actual total of patients is 87.

point of necessity. For example, one man has a 100 per cent disability rating for chronic infectious mononucleosis, the most recent symptoms of which occurred sixteen months prior to the most recent physical examination. In the category of noncombat-incurred disabilities, 114 men with medical diseases are receiving $4,570 per month in compensation, an average of $39.74 per man, and 50 men with orthopedic conditions are receiving $1,394 per month, an average of $27.88 per man—a total of $5,964 for these two groups, or an average of $36.15 per man.

TABLE 4. BONE-AND-JOINT WOUNDS SUSTAINED IN COMBAT

Location of Wound	No. of Cases
Upper extremity:	
Fracture, compound comminuted	39
Joint wound without bone involvement	9
Humerus wound without fracture	1
Total	49
Chest:	
Fracture, compound comminuted, sternum, ribs or vertebra	4
Total	4
Lower extremity:	
Fracture, compound comminuted	41
Joint wound without bone involvement	3
Muscle-tissue wounds	4
Total	48
Total	101*

* There were 17 cases with more than one diagnosis; hence the actual total of patients is 84.

Combat-Incurred Disabilities

The largest group of diagnoses of combat-incurred disabilities fall in the classification of bone-and-joint wounds (Table 4). Forty-six of these men are receiving disability compensation totaling $2,952 per month—an average of $64.17 per man. Most of them had a compound fracture, with or without serious complicating involvement of the viscera, nerves, or other tissues. Since there are still over

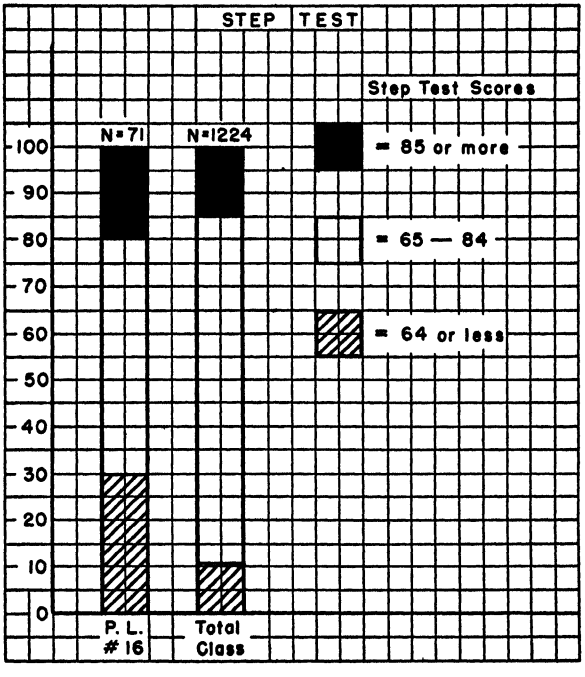


Figure 1. Physical Fitness in Freshman Class, Harvard College (September, 1946)

5,000 men with battle wounds in Army hospitals today, it is obvious that this group does not represent the most serious types of cases. Active osteomyelitis was a rare finding, only 2 cases being observed among the 84 men with healed compound fractures. Only 1 of these patients required hospitalization owing to a minor recurrent abscess due to a small sequestrum. The men with bone-and-joint injuries and those with peripheral-nerve wounds comprise the majority of patients requiring further medical treatment, physical therapy, and remedial exercise.

Appraisal of Disability

Perhaps an adequate method of appraising the degree of disability of these veterans is to compare the results of the compulsory physical-training program required in the freshman class. All freshmen are required to take a physical-fitness test known as the "Harvard

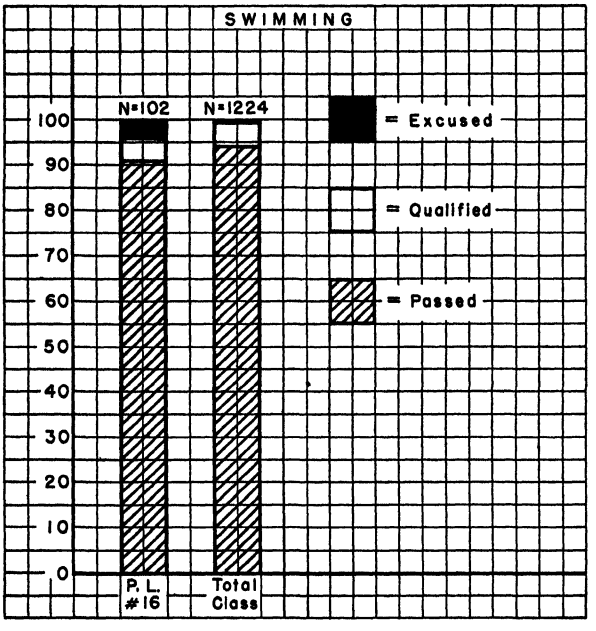


Figure 2. Physical Fitness in Freshman Class, Harvard College (September, 1946)

Step Test," in which they are scored according to an accepted standard of normals. A score of 85 or above is rated as excellent, one of 65 to 84 as satisfactory, and one below 65 as unsatisfactory. The 71 disabled veterans had a higher percentage of excellent ratings than the freshman class as a whole (Fig. 1)—an unanticipated finding. As might have been expected, however, a smaller percentage of disabled veterans completed the test satisfactorily, and a greater percentage failed. In the required swimming test, the incidence of those excused for medical reasons among the disabled veterans exceeded by only 3 per cent the figure for the class as a whole, and likewise, the percentages of those qualifying after instruction were reasonably alike in both groups (Fig. 2). In an analysis of the participation of 156

disabled veterans and 1,786 normal veterans, the incidence of the former who were excused from the compulsory sports program was only 5.4 per cent greater than that of the latter (Fig. 3). Even more significant is the difference of 1.7 per cent in contact-sports participa-

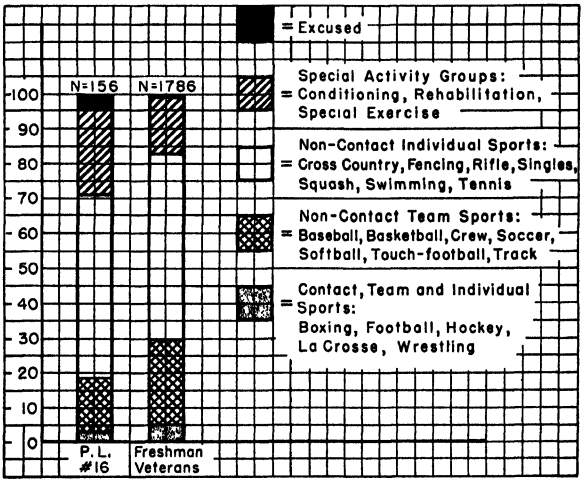


Figure 3. Comparison of Sports Participation Between Public-Law-16 Students and Freshman-Class Veterans (Summer, Fall, and Spring Terms, 1946-1947)

tion between the disabled and nondisabled veteran. From these data, it can only be concluded that many veterans classified as disabled have insignificant disabilities. With over 2,500,000 veterans of World War I and World War II classified as disabled, it appears that many of these men have relatively minor or insignificant handicaps.

Rehabilitation

Since corrective exercises are of greater importance than physical therapy in the rehabilitation of men with late convalescent disabilities, the Hygiene Department has developed such a program. Mr. Lloyd C. Harper, who has had considerable experience with the Army reconditioning program, is responsible for these exercises under medical guidance. The Department of Physical Training has provided the gymnasium and has obtained the necessary apparatus and equipment. Individual treatment is afforded all cases at first. With progress in restoration of function, group exercises, including group sports, are

recommended. Rowing, swimming, basketball, volleyball, and softball are group activities usually provided. There are 10.5 per cent of the 600 disabled veterans now participating in this program.

Those who are familiar with the program of reconditioning and rehabilitation in the Army and Navy hospitals appreciate the values of adequate convalescent care. In returning to civilian life, the severely disabled veteran turns to his family physician, expecting that his permanent disabilities will be treated and improved. Deaver (2) described methods for the rehabilitation to economic independence of the physically handicapped civilian at the Institute for Crippled and Disabled in New York City. Lippman (3) has reported a program of convalescent reconditioning for civilian hospitals. Most hospitals, however, are unable to find space or to obtain the necessary specialized personnel for such an undertaking. Aitken (1) has described an outstanding medically supervised program of rehabilitation, limited in its clientele, for the civilians of New England. Large communities need facilities for rapidly restoring convalescent disabled civilians to gainful occupations. The patient in late convalescence from a serious disability today is the forgotten patient in civilian practice. The rewards of adequate recovery are immeasurable. To increase the average annual wage of 44,000 handicapped retrainees under the 1944 training program of the Office of Vocational Rehabilitation from $148 to $1,768 is a noteworthy accomplishment (4). A similar program would restore a large part of our society—reported to number over 20,000,000 (5)—from dependency on state, county, or city charity to economic independence and productivity.

Summary

A study of 600 disabled veteran students in Harvard University demonstrated that 60 per cent of the disabilities are noncombat-incurred and do not cause interference with the pursuit of academic assignments, that a comparison between the abilities of the disabled veteran freshman and those of the class as a whole to participate in compulsory-exercise programs demonstrates an insignificant percentage variation between the two groups, and that the 10.5 per cent of this group requiring further rehabilitation is taking part in a medically supervised remedial-exercise program.

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MUSIC IN OCCUPATIONAL THERAPY AND REHABILITATION

By ARTHUR FLAGLER FULTZ

The conviction that music can heal man's ills springs with greater frequency from those who love music than from those who are engaged in the treatment of disease. This has fostered a spirited belief among musicians in the therapeutic efficacy of music, a strong hypothesis, but one that has not been sufficiently accompanied by scientific substantiation. Many of those who have sought such substantiation have failed because their research rested upon a faulty rationale. Procedures produced only spurious results because they stemmed largely from armchair speculations. The history of such a priori conclusions has often been that they lacked convincing support when tested under the light of scientific method, and the field of musical therapy is no exception.

But within the last decade and a half increasing attention has been given by investigators skilled in research methods to the problems uncovered by these musical therapy enthusiasts. One center dedicated to the study and encouragement of meaningful musical experiences has devoted the major part of its research division's activity to the organization of functional music in therapy. In the department of music education in one of our state universities, graduate students are working on problems in this field. Several colleges and some governmental agencies have undertaken studies of a serious nature which will show ultimate results that are authentic. Many physicians, psychiatrists, and occupational therapists have become interested in music as a modality of occupational therapy. This whole movement toward organized science and men of science for answers in this many-sided field of activity is most hopeful. Perhaps out of it may develop a true, rational therapy of music which can be included by physicians in their general treatment plan for various types of patients.

The problems met in arranging a schedule of musical activities designed to realize certain specific therapeutic ends grow in impor-

tance when they are centered in musical experience. This emphasis upon experience is a significant consideration, since it is basic to the acquiring of scientific knowledge. The problems of musical experience belong definitely to the psychology of adjustment rather than to acoustics or musical theory. In general, the problems confronting the student of musical therapy stem from the nature of musical satisfaction, the character of musical activity, and the limitations for which the activity was designed, rather than the usual problems of musical and technical standards of artistic performance and interpretation.

Since music becomes meaningful only when it is experienced, we may well move towards an improved rationale on which to develop our practice of musical therapy by considering a few rather basic psychological conclusions regarding experience as a whole, its relation to our levels of satisfaction, and the development of value systems.

1. Experiences occur always as complex sequences of reaction. Reaction is never unitary or simple in its organization. A musical experience of the most elementary sort represents a most complicated series of physical and psychological events that are in turn modified by the perceptual organization of the one undergoing the experience.

2. Response patterns which comprise musical experiences are evoked by internal and external stimulation. Thus the influence of a given musical act may involve far-reaching emotional adjustments, but its forcefulness may be disguised or hidden in extraneous psychomotor expression. This is to say that persons show response in a musical situation both to objective and subjective tendencies. It is this body of psychodynamic events brought forth by the impact of one's environment interacting with his drives and tendencies that is being treated and directed by the therapist.

3. If one is aware of his response, it is known as conscious experience; if not, it is called unconscious experience. Both constantly modify the value of one's musical experience.

4. In a meaningful conscious experience, a person is not only aware of his response, but he also attributes value to it. He finds a relation between what he does and the satisfaction he achieves by it.

5. A growing insight into the history of one's satisfactions may be regarded as one of the authentic results of education. A new approach to music appreciation could be derived from a consideration

of the nature of musical satisfaction. It certainly would lack the nice uniformity of our classical teaching of appreciation, but it might deepen and enrich the music lover's feeling of personal worth in his musical experiences.

6. Values become systematized through the repeated satisfaction of needs. In attempting to organize and guide musical experience, it becomes increasingly useful to recognize at what point it fits into one's whole value system. Since values and value systems merely reflect the manner in which one habitually links activity to satisfaction, we observe that musical experience becomes more meaningful in a therapeutic schedule when the musical situations are arranged and organized so that responses become associated with effectual need-fulfillment. The more action leads to satisfying ends, the more meaningful become the experiences that make it up. The more the forces and drives within the personality are brought into balance by musical activity, the more valued it becomes to the individual as a factor for achieving and maintaining that balance, and the more likely he is to seek out ways to re-experience and strengthen these equilibrating processes on subsequent occasions.

A large portion of musical experience appears to be of limited usefulness in building a scientific practice of musical therapy. Listening to music, per se, offers little opportunity for observing a patient's response pattern, and its influence does not seem to be as readily brought under control as that of other aspects of musical activity. This is not to say that listening as an activity does not contain potent factors for modifying the course of a patient's total response under treatment, but it does not offer as observable, predictable, and controllable material to the therapist as do some other forms of musical action.

When a patient sings, or when he plays on an instrument, there is much overt behavior in his music-making that yields cogent opportunities for observing, evaluating, and guiding his experience into therapeutically advantageous channels. This explains why it is more practical in the long run to restrict musical activities to those types that will produce data that can be seen and rated.

The first consideration raised in constructing a musical experience as part of a therapeutic schedule is the limitations imposed upon it by the therapeutic aims involved. Certain areas of musical experience have therefore been selected because they appear to be therapeutically

more significant. Obviously the treatment aims for different kinds of patients may be manifold and unrelated. Musical activities must remain very flexible to be used for medical patients (as rheumatic fever or tubercular), or for orthopedic cases (as arthritis, polio, surgery, or accidents), or for psychiatric patients if they are to be therapeutically appropriate. Furthermore, the musical activity must be more effective than another type of activity in order to be economical. Also, signs of contraindication in employing music must be heeded. Alfred H. Whittaker has told the medical story of the occupational diseases of musicians, a revelation in the contraindication of musical activity.

A second limiting factor is presented by the use of scientific method. In order to arrange for the appearance of modifiable factors known to possess proved worth in a given treatment schedule, the musical experience must have been observed and measured sufficiently to validate its use in a given situation. To achieve this, information must be gathered about it scientifically. At the present stage of development of this field, the most appropriate method would be observational rather than experimental. The patient's response pattern in the musical situation must be viewed objectively, systematically, precisely, and verifiably, before facts gleaned from such a study can be formulated and trends understood. It is necessary to establish well-defined criteria by which uniform observation may be made by many different observers. Correct judgment on the part of observers with reference to a patient's musical experience will ultimately establish the advisability of employing musical therapy for a given individual. While these factors present a highly technical complex requiring much research, results already obtained in weighing the patient's response in a musical situation show some interesting tendencies. Results of such activity, when collected, tested, and standardized, form the basic formulae by which functional music can be organized for therapy.

Many hospitals recognize the beneficial results of musical activities. Most mental hospitals welcome the services of a good music director. Indeed, any intelligent music director can set up a schedule of musical activities helpful to patients, but the problem of organizing musical experience for functional ends is more than a task of happy programming, a state of affairs that exists all too often in the name of "musical therapy."

Described below are eight areas of musical experience that are important in a systematic approach to therapeutic planning for three types of patients, namely, medical, orthopedic, and psychiatric. It has been demonstrated to a very small extent that modification of certain features of these areas can facilitate the attainment of the therapeutic aims of the physician for his patient. It has also become possible to produce progress charts showing graphically the changes in the patient's musical activity from time to time, and to compare them with statistical norms of average performance. The patient's musical activity becomes a miniature world in a dewdrop that tends to show an incredible similarity to his condition. The selected areas of musical experience and their qualitative factors by which ratings are obtained are:

Area—present but not ratable	*Factor—ratable*
1. Musical skills	Effectiveness
2. Social skills	Adjustiveness
3. Esthetic enjoyment	Sensitiveness
4. Problem solving techniques	Efficiency
5. Physiologic reactivity	Desirability
6. Psychologic reactivity	Desirability
7. Personal viewpoint	Adequateness
8. General integration	Adaptiveness

All ratings are made with reference to the musical activity *only*—not to the patient's pathological condition.

This whole emphasis upon musical experience in these several areas suggests some subtle implications. In the first place, the effectiveness of the patient's musical skills is a portion of the complex response pattern in which he can discover himself as a growing, changing, learning, progressing individual. In this situation he is enabled to develop critical, discriminating insight into his own level of expressiveness. Here vital cooperative interest is mirrored in his achievements.

Another implication of this view of musical experience as the meaningful factor in musical activity is the superior opportunity of guiding the patient's adjustiveness of his social skills. Not only do we as therapists gain insight into his cooperativeness, the place filled by his tendencies toward aggressive learning, or passive following and imitation, his emotional drive, his vigor, eagerness, or half-

heartedness, his level of aspiration, and confidence to try again, but we can see the shifts in his level of musical satisfaction in his sensitiveness to esthetic enjoyment. The musical situation is no longer a mere effort to cover a prescribed block of musical material, but it is a living, mutual commitment by both teacher (therapist) and student (patient) to discover and understand the ways in which the musical act fulfills the latter's needs, the tensions underlying them, and the foundations on which his satisfactions rest. Is his musical enjoyment on a sensory, a perceptual, or an imaginal plane? Is his pleasure centered in nonauditory responses, such as the mood the music creates, the association it recalls or establishes, the characterial functions which he imputes to what he experiences? Is the basis of worthfulness that he finds in his music pragmatic, scientific, or esthetic? When we find in this activity situation the underlying source of his satisfaction of need, we know two kinds of facts: (1) what appeals to him at this time and (2) how to proceed to lead him into a larger and more satisfying musical experience.

In weighing the efficiency of the patient's problem solving techniques, it is possible to observe his definition and grasp of his musical problem and to recognize the sensorimotor skill he summons in handling the problem. We can note a ratio existing between the amount of energy invested by him and the results gained. We can measure the extent of his attainment of action goals, his progressive improvement in subsequent applications, and the flexibility with which he organizes his strategy and executes his tactics in reaching for a solution to his problem. We can appreciate the authenticity of his results by the degree to which he transfers his proved techniques to other problem situations not necessarily musical in nature.

Again, this emphasis in musical education leads us to examine the desirability of certain physiologic responses as they tend to facilitate or to defeat the patient's musical productivity. The question arises as to whether the stimulation, irritation, sedation, or fatigue noted in his musical act is favorable to it or not—is it desirable? Does it reflect tension or relaxation, and if so is this desirable for his music making? Is the degree of coordination achieved in this activity sufficient to be desirable, or is it undesirable?

Likewise, the musical therapist looks for the desirability of psychologic reactions. In the process of attending, is the focus, range, and intensity of attention sufficient and desirable for the patient's

achievement of his own musical satisfaction? Emotionally, does his response show a pleasant, willing acceptance of the musical activity, or does it reflect resistance and unpleasant rejective behavior? Does his imagining, both in retrospect and in prospect, heighten his musical satisfaction? Is he too realistic, or does he tend to indulge to extremes in daydreaming and fantasy? In his musical thinking, does his music-making reveal an appreciation of relationships, comprehension of meanings, richness of ideation, and depth of insight desirable for the patient's achievement of a satisfying musical experience?

One of the most important areas of an individual's musical response pattern suggested by this functional approach to music is the adequateness of his personal viewpoint. We are led to consider the patient's orientation, that is, his sense of position in relation to objects, people, environmental factors, or systems of thought. We concern ourselves with the subjectivity or objectivity of his attitude, with the realism of his evaluations, with the breadth of the scope of his appreciation.

Finally, the significant consideration of the adaptiveness of the patient's general integration gives meaning to his efforts. We look at his total response and map out the location of defense mechanisms, their nature, and their relation to the whole musical result. We test his ability to organize and command conflicting trends of behavior. We explore the extent to which this musical experience actually serves or could potentially serve as a common factor in his past, present, and future experience around which he might organize his energy meaningfully, and in appropriate relation to the other forces influencing his total adjustment.

By a rather complicated rating system, a profile can be drawn for each interview with the patient and a numerical score assigned to his performance. These figures are being cross-indexed at our headquarters according to standard nosological listings and structural dynamics, and the influence of the various disease syndromes themselves upon the musical profile and progress is being noted. Some of the more useful results of this program of musical therapy are illustrated below in a brief résumé of some observations of typical patients' musical experiences:

CASE 1. JOHN. A sixteen-year-old hospitalized boy, rheumatic fever patient, with considerable heart damage requiring complete bed rest. He was chief source of trouble on his floor, getting out of bed, inciting other

boys to mischievous pranks, uncooperative with nurses and attendants. Not only did his attitude disturb others, but it definitely provoked undesirable physiologic reactions in himself. His doctor learned indirectly of the patient's love of music and recommended that he be permitted to play a tonette. Almost immediately every boy on his floor wanted to play the tonette. For weeks the piping of tonettes converted the hospital into a rehearsal hall.

The music director assigned the patient to an affiliating student of musical occupational therapy for training and study. John's profiles showed a marked positive acceleration curve away from subnormal musical experience to better than average. His personal viewpoint showed improved orientation, and evaluations became more realistic. The scope of his appreciation broadened. Frustration tolerance improved. While outward disciplinary problems disappeared at once, in the adjustiveness of his social skills there was a tendency for his cooperativeness to show a negative deviation. Such aesthetic enjoyment as he obtained from his musical activity was seen to rest primarily upon pragmatic values, and secondarily upon aesthetic values. His musical satisfaction was assessed at the perceptual level, but any nonauditory sources of satisfaction seemed to be chiefly due to intrasubjective factors influencing his mood.

Musical composition was suggested. With the aid of an autoharp, which he mastered very quickly, he composed both a school song (for the hospital school) and a catchy little song which he called "The Dance of the Contented Mice." Both were performed by his companions at the June graduation exercises of the hospital. Even the youngest patients were interested, and they illustrated the latter song with drawings of mice gleefully dining on "piles of cheese and rice" when the cat was away. Wire recordings were made professionally.

As a result, the lagging cooperation feature in the profile came forward to balance the score. It is seen that the vitality of this strongly creative musical activity provided the nub of a new sense of worth to his living, gave him much needed recognition, and formed an optimal setting in which his medical treatment could be successfully conducted.

CASE 2. MARY. A nine-year-old negro girl, rheumatic fever, also a bed patient. Somewhat poorly coordinated muscular response, tendency to hypersensitivity and self-consciousness. Worker introduced her to the Dulcitone, a small keyboard instrument mounted on a bed table. Its tone is produced by hammers striking horizontally suspended tuning forks. It could be played by the patient in bed, without disturbing other patients in the same ward.

Her musical effectiveness found its best outlet in her superior management of rhythm. Keyboard techniques helped her to improve hand con-

trol in simple but well-written pieces. Recognition of her success by her fellow patients helped reduce her feelings of inadequacy and insecurity. Interpersonal relationships improved gradually, and her self-expression released much tension and made for better emotional adjustment, which it is believed shortened her convalescence.

CASE 3. MIKE. Soldier in Veterans Administration hospital convalescing from an operation on the left hand. Originally both hand and forearm had been immobilized in a cast, and later when the cast could be removed the hand remained in a "butterfly" splint. No musical training whatever.

When the hand could be taken out of the splint, the musical therapist brought the Clinic Organ to his bedside, placed the keyboard on his lap, and set the adjustable key tension at its minimum, about 50 g. resistance. Music written in Klavarskribo (a new Dutch invention using vertically printed notation giving immediate access in the beginner to what would be the most difficult keys in the old notation) was presented, and soon Mike was playing this miniature pipe organ with a spirit of triumphant mastery with the weak, unmanageable left hand. Daily the worker increased the resistance up to its maximum of 130 g., as fast as joint, tendon, nerve, and muscle function improved. The fascination of the unique musical activity sustained his interest, and it is hoped he will continue on the piano, at least as a hobbyist, after he is discharged.

CASE 4. SUE ELLEN. A woman of forty. In her childhood she was stricken with polio, complicated by osteomyelitis. When we first saw her, her jaw possessed about 30 per cent normal function. Her left leg was shrunken to the shape of the tibia. Her right leg was swollen and ulcerated. Her arms were reduced to a pitiful one inch in diameter—literally skin and bones. Her thorax was distorted and misshapen so that deep or sustained breathing became a hardship. Her hands were stiff, thin, and angular, like those of an arthritic. Her family and relatives refused to take care of her, and she was placed in a state hospital. This girl could hardly bear her weight on crutches and had to be waited on hand and foot.

The Occupational Therapy Department became interested in her. The utter hopelessness of the patient challenged the chief therapist, who carried her down stairs, lifted her deftly into her automobile, and turned her over to the Music Division for singing lessons.

This was the beginning of life for her. Always her songs carried a driving message. Her technique improved. Pitch intonation was accurate. Her singing became very effective. She had to learn to identify her musical problems, to define them accurately, to grasp them, and to

let herself go in finding even the simplest sensorimotor skills. She had to learn how to be efficient in her expenditure of energy. At each performance output increased and input decreased. She somehow realized how to set near goals, instead of stumbling uncertainly toward a desired perfect rendition, only to fail cruelly and go down in defeat. There was progressive improvement in her performance in particular and as a whole. One could see greater appropriateness in her selection of the "winning way" to solve the immediate problem. Her faith in her teacher reflected itself in a will to try anything, and we gradually began to see Sue Ellen applying some of her recently acquired techniques in personal fields other than music.

CASE 5. THOMAS. Thomas is a colored man with an incurable, progressively deteriorative disease. His musical experience is about the only claim he has left to social recognition. Years ago he sang in vaudeville. Today he reproduces almost perfectly two songs and the accompanying routines with which he used to perform them.

He tries desperately to learn new songs, even gospel hymns, such as "He hideth my soul" or "The old rugged Cross," with diminishing success. But he retains a shell of self-consistency in provided opportunities to perform what he still remembers.

CASE 6. BARBARA. Psychoneurosis, anxiety state, age thirty-three. A fairly attractive young woman whose burden is the fact that she feels driven to be perfect. In trying to diminish the distress of her perfectionism she plays very slowly, but with incredible accuracy. When urged to play more rapidly, she shows what appears to be great insight by explaining that speed would cause the music to get out of hand and she must keep it under control. Thus her production shows her own fears and anxiety of losing control of herself. There is excessive overcompensation and avoidance of the speed situation. Her management of the musical act is dreadfully painful, but very slowly and gradually she has developed a real insight into her fears that lets her have a psychological understanding of failure and an increased self-tolerance.

CASE 7. LOUIS. We met Louis in a violent ward of a state hospital. He was thirty years old, a big, wavy-haired, unkempt, noisy, complaining individual whose voice was frequently heard screaming his protests.

One of the attendants engineered procurement of a violin and bow, and Louis began to study violin. One patient helped him in between lessons. Ten weeks later saw him performing on a Music Week Celebration for patients and hospital staff and guests.

The focus, range, and intensity of Louis' attending was sharpened, and his acceptance of the new activity has given evidence of his increased pleasure and better emotional adjustment. He is face to face with reality,

and he has become more objective in his attitude and more realistic in his evaluations of frustrating circumstances. His appreciation has broadened in scope. We recognize a growing ability to organize and command the conflicting trends in his makeup, and we find certain aspects of his musical experience that act as a common factor to give coherence, continuity, and unity to his life.

CASE 8. JERRY. This young adult of thirty-eight ran away from home when he was nineteen. Two nights and days he spent in a hotel in a little town. He had never been away from home. He had not even bade his parents goodbye. Alone in the room, he looked out at the dripping trees that May evening. He turned from its dismal, unwelcoming aspect to his old straw suitcase, in which he had packed only his toothpaste, an old-fashioned razor, a strop, a clean shirt, and a Schirmer volume of Schubert's *Fantasias, Impromptus, and Moments Musicaux*. He was vaguely disoriented. These details impressed themselves on his mind like the strange unrelated characters in a dream.

Now, when a cold rain falls on gently waving trees, newly dressed for May at twilight, the old picture of his lostness returns, and with it the Schubert "Impromptu in G Flat." For a time he again is the wanderer, the hunter, the unadjusted adolescent.

A musical answer was suggested to effect emotional readjustment, reorientation, and a reliable sense of social adjustment. The task was to lead him into a professional use of his music, to help him find meaning and value in as much of his life as possible. He needed a strengthening of his social skills, his cooperativeness, his attack upon life, his eagerness to be up and at it, his rising level of emotional verve, and his confidence in his attainment of his tactical objectives in the light of an over-all strategy. When he plays the piano, these factors become operative. Over a period of weeks his progress can be traced in them.

These case briefs were disguised and selected to show how some of the values described above were applied with varying success with different types of patients. It is believed that the drawing up of uniform cross-sectional and longitudinal studies that may be statistically treated will one day become the core of an authentic musical occupational therapy. Our studies bring into clearer focus certain manipulative aspects of musical experience in which the healing role of music can be made scientific through making it operative in a patient's pattern of response. Much remains to be desired to achieve validation for criteria, and to train therapists in the use of music therapy, but the results gained thus far show very encouraging signs.

MODERN TRENDS IN OCCUPATIONAL THERAPY *

By SIDNEY LICHT, M.D.

The usual natural history of a therapeutic agent follows a pattern which for the sake of simplicity can be condensed into three stages: trial, acceptance, and use. *Trial* implies scientific testing; *acceptance* is based upon the evaluation of the results of trial; and *use* follows in proportion to the essentiality of the method in relation to other available methods.

Occupational therapy received its first *trial* in modern times when, towards the end of the eighteenth century, William Cullen advocated farming for mental patients and by its results directly influenced Pinel (4) to accept and introduce occupational treatment for mental disease. Physicians in many countries soon accepted this apparently successful method, and the *use* of occupational therapy gradually increased until it reached a peak towards the middle of the last century, after which it steadily declined until the beginning of this century for reasons which are not too clear. The disturbing element in this diminution is that it was worldwide, which points to a basic error in its conduct during that period. Soon after the beginning of this century, its use slowly returned and the first World War saw a very rapid increase in its use. This continued briefly after the war, but a decade later the use of occupational therapy showed no further gains and in fact, in proportion to the number of new hospital beds which became available, showed a decrease.

The intensification of occupational therapy during the second World War accounted for more than a twofold increase in its use and should lead thoughtful persons to the question, "Is occupational therapy a war therapy? Was it overpublicized to the lay public and underproved to the medical profession?" Already we can read reac-

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tions to its greatly accelerated use which are disconcerting but must be answered. Barker, Wright, and Gonick (1) have recently charged that the "chief weakness of the occupational therapy movement is its failure to develop an adequate rationale for its program. It has offered neither objective proof of its effectiveness nor a theoretical basis for its procedures. Here is an example of the impracticability of being too immediately and completely practical.... So far as occupational therapy is concerned with the adjustments of patients, we cannot see that it has an important role, as traditionally conceived and practiced."

Here then is the first challenge—we are on trial again. To this challenge there is and can be only one answer—research. We cannot deny that little or no statistical data which are suitable for scientific scrutiny and evaluation have been published. We must correct this deficiency. Research in occupational therapy is the most important present need for occupational therapy if its trend is to continue upward or if it is to maintain the high level it has gained. No branch of medicine is considered progressive unless it continuously reexamines its achievements and plans to gain ever increasingly better ones. It might even be said that the degree of respect which a field of medicine earns for itself is directly proportional to the amount of research it consummates, and aside from the factors of chance (which of course cannot be discounted) success is closely related to unceasing effort.

Barker and his associates have more to say. "The conception of occupational therapy as diversional is certainly inadequate psychologically. It is entirely possible that tuberculous patients, in their physically and psychologically regressed states, get some of the same emotional benefits from play activities that children do. If this is true, more primitive kinds of activities than are usually provided would be indicated. On the other hand it may be that verbal catharsis is as beneficial for adult tuberculous as for normal persons. If so, rigorous training of occupational therapists in techniques of interviewing and counseling is indicated."

This leads us to the second important factor in the upward trend of occupational therapy—the training program for students and, more important, postgraduate instruction for therapists. There are at present many executive positions in occupational therapy which cannot be filled because of the small number of adequately trained

therapists. Many factors are involved. Most important in my opinion is medical direction of the school. At present very few schools of occupational therapy have the advantages of medical supervision enjoyed by schools for physical therapists. Several of the schools are located in cities which are too small to support qualified physicians or too far away from a large city to insure the availability of continuous medical consultation. Curricula already crowded must be extended; if necessary, by an additional six months or year of undergraduate training. Courses which will make the therapists more valuable to the hospital, particularly the isolated hospital, must be introduced. As Barker points out, "It used to be thought that so-called diversional activities such as occupational therapy and recreation were valuable because they kept the patient's mind off his troubles. There is increasing recognition of the fact, however, that the value of any hospital activity derives almost exclusively from its contribution to a solution of the patient's personal problems. Education, vocational training, and work, by allowing the patient to progress toward important goals, are effective in aiding his medical cure because they change the situation from one of conflict and frustration to a situation which provides some satisfaction. In connection with work programs it should be clear that work which does not provide present financial returns or contribute to future vocational placement is almost certain to be useless, for these are central in most tuberculous patients' lives."

There are many hospitals, particularly those under government control, which would object to the participation of the therapist in psychological and vocational activities, but the majority of the hospitals in this country are not so well established financially that they can afford additional personnel for this specialized work. In addition it must be remembered that the value of the occupational therapy project increases with the personal interest of the therapist in the patient, which is gained when the therapist carries the patient from aptitude determinations through prevocational exploration. The future of occupational therapy will be influenced by whether or not fuller instruction is given in interviewing and counseling.

A third and very healthy trend is the increasing attention which physicians are giving to occupational therapy in the hospital. Much of the credit for this move belongs to the redefinition by the American Medical Association of physical medicine to include occupational

therapy. Additional credit should go to the Armed Services, which tried to place physicians in military hospitals in charge of the occupational therapy department, but the greatest impetus to this movement has been the insistence by the Veterans Administration that the department in each of its hospitals come under the direct supervision of a physician and that a specialist in physical medicine be so assigned wherever available.

There are as yet too many hospitals in which the chief therapist is responsible only to a lay superintendent. In such situations physicians will tend to treat the occupational therapy department as a hobby shop—and with much justification. The future development and complete acceptance of occupational therapy by the medical profession will, in my opinion, be closely related to the immediate supervision of all occupational therapy activities by physicians. Every school for physical therapists has a medical director, but how many schools for occupational therapists can say the same?

When this discrepancy is rectified, it will become more logical and feasible to introduce the subject of occupational therapy into the curriculum of medical schools. At present only a handful of medical colleges in this country have even one lecture in the entire four years devoted to that subject concerning which many large hospitals in this country have, or soon will have, as much floor space and personnel as is devoted to laboratories and other departments which are accorded much attention in medical studies.

The strength of occupational therapy is closely related to the use and usefulness of its professional organizations, and in this respect some commendable progress has been made, but some of the state societies pay more attention to the social side of their monthly meetings than to the technical aspects of occupational therapy. Since most occupational therapists work with patients rather than in schools, they can do themselves most good by convincing all concerned of their scientific attitude and purpose, and this will only be accomplished through planning more technical meetings of state societies and smaller groups. Occupational therapists have been notoriously silent about therapy. Many therapists in this country are conducting excellent programs and are making contributions which are unknown outside their own hospitals. Occupational therapists must learn how to record their observations and innovations. They should seek the help of physicians or other members of

the hospital staff in the publication of such material. The continued upward trend of occupational therapy is more intimately related to the dissemination of valuable new information by therapists than most of them are willing to believe.

There is another very important factor which has supposedly been in operation for some time but which now requires serious review, and that is the screening of applicants for enrollment in schools of occupational therapy. In the past many schools have selected students on the basis of a personal interview in which one person, or at best two or three, welcomed or denied applicants to admission on a very opinionated and unscientific basis. The psychologic and even physical aptitude for the profession of occupational therapy is far more complex than that of many other callings, and many of the failures encountered may be attributed to the lack of adequate screening of occupational therapy school applicants. Liss (3) has recently pointed out the complexity of the therapist's requirements. "When we wish to apply our knowledge, the problem of egotism in each individual is a serious one. The artist's egotism is centered upon the finished product, and this may defeat the very purpose of the therapy, for the therapeutic values of an activity lie in its inherent cathartic aspect and that particular individualistic free play which is permissible to the creator. Undue stressing of end results frustrates the tender, tentative, exploratory needs of the patient. To be sure, subsequently the end result, the esthetic, has its definite function, but at the outset of any activity, the doing or becoming is most important. Therefore, the relegation of the therapist's ego to its proper role is an essential requisite to the effectiveness of the program. The therapist must be flexible in his response to the inner conflicts of the patient, and at the same time must be labile and comparatively free from the anxieties that are centered around disease in its multiple manifestations." The quality of occupational therapy is of necessity related to the number of therapists who continue to practice it for long periods. The rate of attrition among therapists has been higher than can be explained by marriage or motherhood. Too many of them leave the field too soon, and there is little doubt that the rate of retirement from the field would be promptly benefited by scientific screening on admission.

During both World Wars occupational therapy received its greatest impetus and stimulation from its use with patients presenting

neuro-musculo-skeletal disability, and yet it is in this very field more than in any other that physicians have shown and are showing skepticism. Dr. Cranfield (2) has recently pointed out that the methods of occupational therapy are not nearly as satisfactory for building muscle power as medical gymnastics. The chief values of occupational therapy in physical disability are improvement of endurance and, even more important, retraining for coordination. As such it will continue to gain in acceptance for the treatment of patients with hand injuries, cerebral palsy, hemiplegia, and related conditions and will probably continue in popularity at curative workshops, and at hospitals for children and the chronically disabled. But its use in the acute general hospitals will undoubtedly diminish as it did after the first World War because the budgets of most hospitals cannot afford this luxury, which is least needed by the patient who must be discharged at the earliest possible moment—the very moment at which occupational therapy first becomes useful. It would be most prudent for us to recognize the limitations of occupational therapy for the short-term patient in the general hospital and spend more time and effort on the more readily understandable advantages of occupational therapy—with the chronically ill and the psychiatric patients. It is imperative that the limitations of occupational therapy be as widely advertised as its indications.

For the physically disabled occupational therapy is assuming a newer and more important role in prevocational exploration. This is a trend which should be encouraged, not only because it is a natural development of the philosophy of occupational therapy but because it is necessary to the complete integration of occupational therapy in the rehabilitation process. Prevocational exploration is best managed by the therapist who has had some training along the lines indicated earlier—aptitude and interest testing, vocational retraining, and selective placement—so that he may assist patients and qualified personnel more intelligently and carry the entire burden where specialists in these fields are not available.

The trend toward more and better curative and sheltered workshops is becoming increasingly apparent. Although there has not been much outspoken criticism of the workshop for industrially disabled persons, it would seem that some of the announced results may be based more on enthusiasm than on prolonged critical surveys; but the value of the sheltered workshop has been underestimated. There

are and will always be in every community a far greater number of disabled persons with severely limited work capacity who are anxious to employ their talents and energy for self-satisfaction and support than facilities will permit. Just where and to what extent the occupational therapist fits into this picture is controversial. Many sheltered workshops are supervised by social workers or business executives. Because the shops are business ventures of social importance, this is probably wise, but we can hope that all such shops (as so many already do) will have at least one occupational therapist who will supervise exploration and work-conditioning in them.

During the war years the publicity accorded the use of occupational therapy for surgical patients eclipsed that for all other conditions. Slowly but surely this will fade and occupational therapy for tuberculosis and mental diseases will once again rise to its rightful importance. Occupational therapy is still more useful and necessary with mental patients than with those in any other category. In psychiatry as in no other field is the therapist *himself* a therapeutic agent. Those therapists who cannot appreciate this were either inadequately instructed at school or have never had the opportunity to see purposeful psychiatric occupational therapy properly administered. Medical gymnastics can be substituted for many of the physical attributes of occupational therapy, but there is still no substitute for occupational therapy in psychiatric practice.

Occupational therapy for the tuberculous may one day be equally important, but this will not happen until the objectives are more universally understood and more realistic methods are developed. The objectives are: to keep the bed patient contented while at bed rest; to build up work tolerance when prescribed; and to explore post-sanatorium vocation to the fullest possible degree. Packaged projects of measured work dosage must be developed with the methods of industrial engineering.

The modern trends in occupational therapy are mostly upward. This has happened before and been reversed before. Occupational therapists more than any others can keep it moving upward by working hard at it and for it. Complacency is the chief danger. Difficult though it may be, they must reject the unfounded praises of incompletely informed people. Therapists must increase their efforts to interest physicians and other professional workers, to secure the services of a physician in the guidance of their programs, to read and

contribute to the literature in the field, to avail themselves of every educational opportunity to improve their knowledge, and to pass on to others information concerning the benefits to be derived from occupational therapy.

There is an old *Briticism* that it takes three generations to make a gentleman. Must it take three wars to make occupational therapy?

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EVALUATION OF TRAINING OF PHYSICAL EDUCATIONISTS FOR RECONDITIONING AND REHABILITATION *

By H. HARRISON CLARKE, Ed.D., AND EARL C. ELKINS, M.D.

Physical medicine has a definite interest in the training of physical educationists in the colleges and universities of this country. This interest is not new, as men and women from the field of physical education have been accepted for courses in the technic of physical therapy by accredited schools of physical therapy for more than twenty years. Today, however, something new has been added.

The great influx of physical educationists into the field of physical reconditioning in the Army, Navy, and Army Air Force convalescent programs during the war, the utilization of such personnel in Army and Veterans Administration hospitals since the war, and the separate recognition accorded physical reconditioning by the Baruch Committee in its recommendations for the establishment of rehabilitation centers amply justify the concern of physical medicine in the training of personnel entering this work.

It is, therefore, appropriate to request a searching investigation of the training standards in physical education. The question may logically be asked, Should persons trained in physical education be accepted as technicians in physical reconditioning as used in medical practice?

This paper should be considered as an introductory exploration and a preliminary evaluation of the training of physical educationists for work in reconditioning and rehabilitation. No effort was made to be exhaustive in considering this subject. References to past and recent studies pertaining to this problem, however, have been made, and some new material has been included.

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Influences Affecting Physical Education

In considering the appropriateness of training in any field, whether it is engineering, medicine, or physical education, it is necessary to understand the purposes to be achieved by that training. Certainly, training for the three professions mentioned would not be identical, as the purposes to be achieved are not identical. Therefore, to evaluate intelligently the training of physical educators, one must first understand the development of this field, the influences that have affected it, and the adjustments made to these new influences as they have appeared. Very sketchily, then, the following key factors in the growth of physical education in this country are presented.

1. Early forms of physical education were transplanted from European countries by immigrants. Two major systems of this sort, the German and the Swedish, have had a lasting effect. The German form, based upon gymnastics and the use of heavy apparatus, arrived early, around 1825. Based upon "medical gymnastics," the Swedish system was introduced in the late 1880's. These forms, along with a smattering of other European systems, still are utilized somewhat in physical education programs in the United States (9).

2. In the early days of physical education, physical development—the building of strong and enduring bodies—was the primary, and perhaps only, concern of the physical educator. Later, there was a swing of emphasis to sports and an emphasis on character and personality development and the teaching of skills for leisure-time use. To secure an appropriate balance between the various objectives of physical education and to consider the individual needs of boys and girls are the major problems for the future of this field.

3. Many medical men composed the roster of pioneer leaders in physical education in America. Such names as Dr. James H. McCurdy, of Springfield College; Dr. Dudley A. Sargent, of Harvard University; Dr. R. Tait McKenzie, of the University of Pennsylvania; Dr. William G. Anderson, of Yale University; Dr. Edward Hitchcock, of Amherst College; and Dr. Joseph E. Raycroft, of Princeton University, are mentioned, to list but a few. In more recent years, with the dominant application of physical education in the schools, leaders have come primarily from the ranks of doctors of philosophy and, more recently still, of doctors of education.

4. The therapeutic value of physical activity has long been recognized by teachers of physical education. Based originally upon Swedish "medical gymnastics," corrective exercises have been utilized by physical educators, and courses in this area have been requirements in training programs. Not until the second World War, however, was the full range of activities included in physical education recognized as having therapeutic value and utilized in the convalescence of battle casualties.

5. Prior to the first World War, physical education did not appear generally in public school curriculums. Only two states, North Dakota and Idaho, had state laws requiring physical education in the schools. By 1932, thirty-six states, which represented 90 per cent of the population, had state laws (13). At present, all but eight states have such statutes.

6. The number of physical educators in the United States has increased tremendously. In 1918 there were approximately 10,000 men and women with training in this field; in 1932, 20,000; and in 1947, 65,000. It has been estimated that there will be 125,000 physical educators in the United States by 1960 (10).

It is obvious, therefore, that the training of physical educationists today is aimed primarily at preparing teachers and supervisors of school programs. The therapeutic aspect, as reflected in the use of corrective exercise, is present, and elementary courses in this area have traditionally been requirements in undergraduate physical education training programs. Study of the basic sciences, however, is stressed and will be considered later in this paper.

Background of Professional Education

As the major purpose of this paper pertains to professional training in physical education, it would be well next to give a brief background of its development in American colleges and universities. The following information provides an overview of this growth.

The earliest attempt to prepare teachers of physical education was made during the Civil War by Dio Lewis at his Normal Institute for Physical Education in Boston. The first courses at the institute were nine to ten weeks long. Other schools of a similar nature were opened subsequently. Colleges and universities accepted this new type of training first as summer courses, with Harvard University leading

the way in 1887. Wellesley College for women and Springfield College for men early included professional training in physical education in their curriculums (9). The first state normal school to provide such training was the one at Ypsilanti, Michigan, in 1894, and the first state university was the University of Washington in 1896 (5).

Before 1910, the training of instructors was left largely to private normal schools. Owing to passage of state laws making physical education compulsory in elementary and secondary schools following the first World War, the demand for men and women qualified to teach in this field increased tremendously. As a result, college after college inaugurated training programs to meet the demand. The numbers were as follows: in 1918, 20 institutions; in 1929, 139 institutions; in 1944, 295 institutions and, in 1947, 361 institutions.

Early training programs for instructors in physical education were completed in a few weeks only. Later, one-, two-, and three-year courses appeared, until finally the only acceptable programs required four years of college training and a degree. Five-year programs are now being initiated. The minor in physical education still exists but is recognized as inadequate for teachers by qualified professional leaders.

The first graduate major in physical education leading to the master's degree was established in 1901 by Columbia University. Springfield College and Oberlin College were the only other institutions providing opportunities for graduate study prior to 1918. The first doctor of philosophy degree with concentration in this field was offered in 1924 by two institutions: Teachers College, Columbia University, and the School of Education, New York University. By 1933, thirty-two institutions in the United States provided graduate study in physical education (6). By 1942, this number had increased to fifty-six, and twenty of these institutions offered the doctorate (8).

The most profound effect on physical education in this country has been the requirements adopted by state departments of education for the certification of teachers. Although there is little similarity of requirements in different states (as they range from no requirements in Massachusetts to requirements of thirty-six semester hours of physical education, eighteen semester hours of basic sciences, and eighteen semester hours of professional education in New York), the general influence has been to improve training for the profession of

teaching physical education. For example, it is now generally necessary to fulfill the requirements for a bachelor's degree (11) in order to teach. In 1931, only nineteen states required a degree; prior to the second World War, the number had reached forty-three states, only five accepting less than a degree for certification (3).

During the second World War, the demand for trained physical educators by the armed forces was so great as to cause a critical shortage of men teachers in this field. The issuance of emergency certificates to untrained personnel became usual practice in all states in order to continue physical education in the schools (7). Thus, unless the states now refuse to renew such certificates, these unqualified persons will continue to teach.

At present, there is no professional physical education course which is recognized as standard. Several attempts, however, have been made to evaluate professional curriculums and to establish proper machinery for accrediting institutions preparing teachers in this field. In 1913, Dr. Charles H. Judd, of the University of Chicago, advocated the appointment of a permanent committee on standards for the training of physical educators (9). Immediately after the first World War, the American Physical Education Association appointed a committee to study the problems of teacher training. This committee reported in 1920, but action did not result because of the tremendous demand for teachers of physical education at that time and thereafter. Again, in 1929, another committee from the same association reported on the curriculums of 139 institutions preparing teachers of physical education in the United States. Proposals to inspect institutions where teachers were being trained and to prepare an accredited list failed because of insufficient funds to finance institutional inspections (1).

A very extensive effort to prepare standards and to establish accreditation in physical education was made in the 1930's by a National Study Committee, composed of representatives from the following six national associations: American Association for Health, Physical Education and Recreation; Society of State Directors of Physical and Health Education; City Administrative Directors Society; National Association of Directors of Physical Education for College Women; College Physical Education Association; and Department of School Health and Physical Education of the National Education Association. Some experimental inspections of training

programs in physical education were made, but the accrediting process did not become effective (12). Now the American Association for Health, Physical Education and Recreation again is concerned with standards of training. Since the war, a large number of institutions have added training programs in physical education to their curriculums. The need for regulating this movement by insisting on minimal standards of training is very evident, and a standing committee of the Association once more has been appointed to attack the problem energetically. The success of this latest effort is essential if the program is to gain the status and prestige of which it is capable.

The Physical Education Curriculum

The real problem in the training of physical educators centers primarily around the question, What should be included in the preparation of the prospective teacher of physical education? The most recent and searching study pertaining to this question was made by Blesh (4). He utilized the following three factors for evaluation of curriculum content in this field: (1) analysis of the requirements for certification of teachers in each of the forty-eight states, (2) study of the physical education courses of study appearing in the 1935 to 1940 catalogues of seventy-five selected schools offering major programs in this field, and (3) the opinions of thirty-one carefully selected experts in physical education. The following training program is proposed from the recommendations made by Blesh and may be considered desirable in accordance with present thought and best practice (reference to the usual institutional liberal arts or general education requirements for the bachelor's degree is omitted):

1. Foundation sciences, including biology, human anatomy, and human physiology
2. General psychology
3. Professional education, including history of education, principles of education, educational psychology, methods of teaching, and student teaching
4. Technical training, including kinesiology, physiology of exercise, measurement and evaluation, physical examinations, corrective exercise, normal growth and development, nature and function of play, training and first aid, school programs in physical education, recreation leadership, camping, administration of physical education, and physical skills and coaching technic; under physical skills should appear aquatics, ele-

mentary games, team sports, individual and dual sports, gymnastics, tumbling and dancing

The well-trained physical educator must have a thorough grounding in foundation sciences, must understand the learning process and the effective applications of his modalities to the education and development of the individual, must have great versatility in teaching the many activities included in a physical education program, and must be able to administer and supervise a varied program of physical education and athletics. That it is difficult to achieve the objective of training physical educators adequately within the limits of a four-year college program and still provide the liberal-cultural education of the student is not to be denied. Many colleges and universities, as a consequence, are not providing as complete a course of study as is outlined. The evidence provided by three recent studies follows:

1. Russell study: Russell (14) studied the trends in physical education teacher training in the thirty-six teachers' colleges of the North Central Association area through an analysis of their catalogues from 1910 to 1940.

2. Study of Mayo Clinic transcripts: As physical education is one of the fields from which candidates are approved for training as physical therapy technicians, at the Mayo Clinic one of us analyzed 144 transcripts of credits of graduates from schools of physical education. Of this number, 136 were women and 8 were men. Fourteen applicants did not have a college degree, and 4 had master's degrees. Approximately half of these students received bachelor's degrees after 1940; the remainder had obtained the degree back over the years to 1923. Colleges located in twenty-three states and Canada were included in the group. The largest numbers of students came from Wisconsin (17), Pennsylvania (16), Michigan (15), Minnesota (13), and Illinois (10).

3. Questionnaire study: In order to obtain an up-to-date postwar picture of professional training in physical education, one of us sent questionnaires to 361 institutions known to be offering undergraduate work in this field. Information pertaining only to courses actually required of all students during the academic year of 1946-1947 was requested. At the time this paper was written, 133 replies had been received reporting requirements for men, and 127 for women. These institutions were located in thirty-eight states and provided a

rather wide distribution of practice throughout the United States. Because a comparison of the course requirements for men and women majors in physical education revealed only minor differences and these were particularly in physical skills, this report refers only to the requirements for men.

A summary of the significant findings pertinent to this paper contained in the three studies is as follows:

1. Physical sciences: Courses in the physical sciences are not generally required (although they frequently may be elected). Forty per cent of the 133 institutions included in the questionnaire study insisted on a course in chemistry, six to eight semester hours being the usual requirement. Only thirteen institutions required that students take a course in physics; two permitted them to take either chemistry or physics, depending on the choice of the student.

However, in the transcript study, 82 per cent of the 144 applicants had at least one course in the physical sciences as an undergraduate. Sixty-three per cent had courses in chemistry, the prevalent number of semester hours being six to eight; 29 per cent had courses in physics, the modal number of semester hours being six. A scattering of other physical science courses had been taken by this group.

TABLE 1. BIOLOGIC SCIENCE COURSES REQUIRED OF PHYSICAL EDUCATION MAJORS AS REVEALED BY MAYO CLINIC TRANSCRIPTS AND POSTWAR QUESTIONNAIRES

Biologic Science Courses Required	Institutions, %	
	Mayo Clinic Transcripts	Postwar Questionnaires
Anatomy	92	86
Biology or zoology	92	77
Physiology	82	77
Kinesiology	63	77
Physiology of exercise	34	38

2. Biologic sciences: Only one applicant in the transcript study and one institution in the questionnaire study failed to include some courses in the biologic sciences in undergraduate programs. The distribution of these courses for the transcript and questionnaire studies is shown in Table 1. Pertinent comments pertaining to requirements in biologic sciences as shown by the three studies reviewed are as follows:

a. Courses in biology or zoology, anatomy, and physiology appear on more than three fourths of the transcripts and are required by more than three fourths of the institutions. Kinesiology is also required by more than three fourths of the institutions and appears on a majority of the transcripts.

b. The range of semester hours in this area shown on the transcripts was from five to forty, with the median located at eighteen semester hours. Of the group of 143 students whose transcripts showed a record of biologic sciences, 75 per cent completed at least fifteen semester hours and 25 per cent completed twenty-four or more semester hours. All but 10 of the 144 students completed undergraduate study in biology or zoology and in anatomy.

c. The catalogue study by Russell revealed similar emphasis upon the biologic sciences, although the basic science requirements of the thirty-six teachers colleges decreased from 22 semester hours in 1910 to 15.5 semester hours in 1940.

d. In all three studies, physiology of exercise received relatively light emphasis. This is surprising when the importance attached to this subject by leaders in physical education is considered. (It was recommended in all national committee reports.) This course was never required by more than five of the thirty-six institutions included in Russell's catalogue study; it appeared on 34 per cent of the transcripts and was listed as a required course on 38 per cent of the questionnaires.

e. A course in bacteriology was included as a biologic science requirement by 15 per cent of the institutions answering the questionnaire.

3. Psychology: At least one course in psychology appeared on 96 per cent of the transcripts and was listed on 94 per cent of the questionnaires. The courses appearing most frequently were general psychology (83 per cent of the transcripts and 64 per cent of the questionnaires) and educational psychology (57 per cent of the transcripts and 80 per cent of the questionnaires). Seventeen other psychology courses were listed on the transcripts of from 1 to 11 applicants.

4. Corrective physical education: Forty per cent of the transcripts and 64 per cent of the questionnaires listed a course in corrective physical education. This appears to be a relatively smaller proportion than would be expected when the importance of this subject as traditionally practiced in physical education is realized.

5. Hygiene: A course in personal hygiene is a common requirement among the 133 institutions included in the questionnaire study;

77 per cent make it mandatory. Approximately half of the colleges and universities required community hygiene, and a few (14 per cent) insisted on a course in mental hygiene.

6. Professional education: The questionnaire study also revealed that all but three of the institutions required of their majors in physical education specific study in professional education. The median and modal requirement was eighteen semester hours. Twenty-five per cent of the institutions required twenty semester hours, while a similar percentage permitted fourteen semester hours or less. The typical courses required were history of education, principles of education, educational psychology, methods of teaching, and student practice teaching.

7. Technical physical education: The median number of semester hours of courses in technical physical education required by the institutions answering the questionnaire was thirty-four; the modal number, thirty-six. The first quartile was twenty-eight and the third quartile thirty-nine. The courses most generally required by these institutions appear in Table 2.

TABLE 2. TECHNICAL PHYSICAL EDUCATION COURSES REQUIRED BY AT LEAST 25 PER CENT OF THE 133 INSTITUTIONS

Courses Required	Institutions, %
Organization and administration	100
Physical education and athletic skills	100
First aid	78
Corrective physical education	64
Philosophy and principles of physical education	56
History of physical education	55
Tests and measurements in physical education	51
Physical inspection	37
Camp leadership	27

The only two types of courses required by all the institutions were, first, organization and administration and, second, physical education and athletic skills. Under this latter classification are grouped such activities as aquatics, all forms of team, dual, and single sports, elementary games, gymnastics, tumbling, and dancing. More than 50 per cent of the institutions also included such courses as first aid, corrective physical education, philosophy and principles of physical education, history of physical education, and tests and measurements in physical education.

In brief comment on this survey, it may be pointed out that the type of training a physical educator receives depends largely on the institution he attends. At some institutions the requirements are very demanding; at others they appear quite meager. At this point, however, it should be emphasized that the studies reviewed refer primarily to actual requirements and are not involved with elective courses, except as they have been taken by applicants for physical therapy training at the Mayo Clinic.

Relationship of Training in Physical Education to Reconditioning and Rehabilitation of Patients

In evaluating the training of physical educationists for reconditioning and rehabilitation of patients, it should first be pointed out that the training of physical educationists in the past, as well as at present, was not designed to prepare technicians for work in this field. As was indicated earlier in this paper, the vast majority of institutions in this country providing training programs in physical education are doing so primarily to provide instructors in schools. Consequently, the dominant role in shaping these training programs has been to supply the needs of education.

As a consequence of this emphasis, it seems entirely feasible not to evaluate the training of physical educationists for direct application to reconditioning and rehabilitation but to assay its contribution in the light of essential background for specialized training of technicians in this field. This is the position taken in relation to training other technicians in physical medicine, such as physical therapists and occupational therapists. The graduate in physical education desiring to enter the field of physical reconditioning should be accorded similar consideration, as he is definitely not prepared upon graduation to work with patients or to treat disabilities.

The answer to the problem of providing properly trained physical educationists for reconditioning and rehabilitation is postgraduate study at institutions providing specialized programs in this new field. The adequately trained physical educator needs to take more courses in anatomy, kinesiology, physiology, and physiology of exercise than he had as an undergraduate and must know their relationship to pathologic conditions. He needs to understand the pathology of the various disabilities he will encounter and the necessity for physical

activity in surgical, orthopedic, neurologic, and psychiatric cases. He must be thoroughly acquainted with the modalities of exercise, adapted sports, aquatics, and recreational activities and should have extensive supervised clinical experience with patients in hospitals and rehabilitation centers. This type of study is not provided in present four-year and graduate programs in physical education. Thus, the need for specialized training in reconditioning is evident and will be accepted by well-informed and competent physical educators.

In addition, some doubt can be cast upon the qualifications of many graduates of schools of physical education as competent to enter into specialized study in reconditioning. The studies of training programs reported in this paper point to serious inadequacies at many institutions. In part, at least, the scientific background of the applicants for the course for physical therapy technicians at the Mayo Clinic was superior because of the requirements for admission established there and by the Council on Medical Education and Hospitals of the American Medical Association (2). Even at the Mayo Clinic, however, the transcript analysis revealed that some applicants had not had kinesiology as undergraduates and a large number had not had physiology of exercise. In the data obtained from questionnaires by one of us (Table 1), the situation was much worse: 23 per cent of the institutions did not require biology; 23 per cent, physiology; 29 per cent, kinesiology; and 62 per cent, physiology of exercise.

It is suggested, therefore, that physical educationists applying for training as technicians in reconditioning and rehabilitation be required to present a bachelor's degree and to have taken the following courses:

Basic sciences: minimum of twenty-six semester hours
- Minimum
 - Biology (or equivalent)
 - Anatomy and kinesiology
 - Physiology and physiology of exercise
- Desirable
 - Chemistry
 - Physics

Psychology

Hygiene
- Personal hygiene
- Mental hygiene (or equivalent)

Technical training in physical education
Undergraduate major in physical education
(Minimum: thirty-six semester hours)
Methods courses and practice teaching experience

Unlike technicians in physical therapy, technicians for reconditioning work should come entirely from the field of physical education. Familiarity with the numerous physical and athletic activities and the method of their presentation is essential for technicians in this field.

As is well known, physical educationists were utilized extensively by the armed services in the physical reconditioning of battle casualties and many are similarly engaged in postwar Army and Veterans Administration hospitals. The technical and professional training of these men is not generally known. In the Army Air Force, however, nearly all the officers who were doing work in reconditioning had degrees in physical education and many had master's degrees. Approximately half of the enlisted men had degrees in physical education, and about 25 per cent more had had some training in physical education. It is believed that this branch of the service had a more favorable situation in this respect than either the Army or the Navy.

The professional background of the physical educationists who are now helping with corrective physical rehabilitation in the Veterans Administration hospital program has not been reported. In evaluating the qualifications of these men, however, it should be remembered that they have had special courses in reconditioning and have had extended duty in service and veterans' hospitals under medical supervision. They were selected carefully from a much larger number engaged in Army, Navy, and Air Force physical reconditioning programs during the war. As a result, they are much better prepared for the mission they perform than is a person who was graduated from college in 1947 with a major in physical education and who had had no previous experience in this field. It seems logical to presume, therefore, that the qualifications of these men must be evaluated in terms of the job they have done on the operational level after extensive experience and in-service training under competent medical supervision rather than entirely in terms of college degrees and formal courses passed. This observation will also apply to those who have had advanced training in correctives at schools of physical education.

A final point of interest that might well be mentioned is that physical reconditioning has attracted men. In the older field of physical therapy, most of the technicians have been women. For example, 94 per cent of the applicants for the course at the Mayo Clinic were women. The choice of the newer field by men should prove a definite asset to physical medicine and rehabilitation.

Discussion

Dr. George D. Wilson (Asheville, N. C.): Professor Harrison Clarke and Dr. Elkins have prepared a paper which brings out the fact that there is no recognized standard of physical courses for applicants in physical therapy, a condition which surely will be rectified in the near future.

Among the preparatory subjects I was glad to see a course in personal hygiene. This is very essential in any personnel handling patients.

It is also suggested that physical education in the future should have instruction in patient management. I should like to see, in lieu of so much coaching technic, that physical educators going into physical therapy have a course in patient management.

I should like to ask Dr. Clarke one question: Will there be or should there be adjustments in qualification credit for reconditioning or corrective rehabilitation men to be admitted to physical therapy schools, to stay in corrective physical rehabilitation?

Dr. Clarke (closing): I am not the one to answer that question ultimately. I can merely give an opinion.

I believe you are referring to men who have shown outstanding competence in the veterans' programs and other programs now being conducted, who do not have a basic training in physical education.

I personally believe this would have to be placed on an equivalent basis, and when a man's experience would compensate for lack of formal training it should be taken into account.

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THE PSYCHOLOGICAL ASPECTS OF REHABILITATION

By Louis Long, Ph.D., and Charles Roth, Ph.D.

The consideration of psychology as a discrete phase of rehabilitation can be justified only for purposes of discussion. The integrative character of restoration must be strictly observed in practice, since the autonomy of individual personality predicates coordinated therapy. It is with good reason that the "rehabilitation team," currently operating at various clinics in the country, has been established. However, since no lines of demarcation separate the areas of investigation and treatment, effective correction of physical disability and its concomitant mental manifestations requires an overlap of knowledge on the part of each therapist. The increasing recognition of the psychosomatic nature of responses to handicaps further emphasizes this approach.

Some of the phases of rehabilitation which may engage the efforts of the psychologist are: analysis of mental reactions to disability, resolution of maladjustments, appraisal of potential, estimation of interest, and motivation toward healthy reorientation and complete socioeconomic existence. In order that these factors may be evaluated properly as parts of a larger problem and in order to assist other members of a rehabilitating unit in making a better estimate of the patient's needs, this article will present the psychological principles which may be applied in the restoration process. In general, the discussion will be confined to the psychological changes and psychological problems that may arise in connection with those disabilities where the disturbance of personality is a reaction to a physical disability.

The article has been divided into three main sections. In the first section, factors leading to personality maladjustment are discussed, along with the mechanisms that bring about these changes. In the second section, procedures and techniques that may be used to ease the adjustment and to help prevent undesirable personality traits from developing are described. In the third section, an evaluation

is made of the body of knowledge that has been collected in this general field, with special emphasis upon the research work that has been done thus far. In this connection some of the research tools and techniques are critically evaluated and suggestions are made as to research problems that might profitably be undertaken.

Factors Producing Psychological Maladjustment

The return of the physically handicapped individual to his functionally normal place in society is the objective of rehabilitation. Its procedures, therefore, must be determined by the existing somatic disability and its maximum correction, the related personality distortions and their resolution, and adequate preparation for economic independence. The second of these will be discussed in this section.

The areas in which maladjustments to disabilities may be generated are fairly well established. The first area is that of societal reaction. The vastness of this source may account for the diffuseness of relevant material. Such studies as have been made concerning public reaction to handicapped individuals have been summarized by Barker, Wright, and Gonick (2). They state that the average expression of public opinion is sympathetic; a minority expresses negative attitudes. The rating scale method of investigating reactions to the disabled does not seem adequate. Opinions are influenced somewhat by the formality of the method. Unexpressed feelings of fear and loathing would more likely be experienced by many were they personally to meet handicapped strangers with extreme varieties of disablement. Workers in the field of physical deviants have become accustomed to exceptional physiques and mingle with others whose attitudes have been softened by experience. Investigators who studied the reactions of college students to disability (25) sampled a select group whose educational and social backgrounds may well act as mollifying factors. But a large portion of our population does not react favorably toward the handicapped. It is in this group that one still finds attitudes of revulsion. The frequently mentioned need for the further education of society in relation to physically handicapped individuals can most profitably be directed toward this segment of society. As usual, however, it is the most difficult to reach.

The adverse effects of society's lack of sympathy are varied and unspecific. Probably the most harmful result of this attitude is the

exclusion of the disabled from complete social intercourse. Feelings of inferiority and social inadequacy are likely to be increased. The still unfavorable reactions of employers, improved though they may have been as a result of the performance of handicapped workers in industry during the last war, show continued resistance to employing the disabled. This feeling stands as an obstacle to the ultimate solution of the deviant's problem in developing economic independence. The tendency of some cultural groups to relate physical impairment with evil is mentioned by Miller (24). Such medieval ideas can lead only to retrogressive responses by the disabled.

Societal attitudes, then, are powerful influences which may tend to develop feelings of anxiety, insecurity, resentment, depression, and frustration in the handicapped individual. These reactions, in turn, may further complicate the personality distortion and increase the problems encountered in the rehabilitative process.

The attitudes of parents and other close relatives constitute a second determinant of maladjustment. The most usual parental response is that of overindulgence. On the other hand, expressions of rejection are not uncommon. Some parents encourage their child to compensate for his handicap by striving for superior mental accomplishments (21), others alternate between indulgence and severity (32). All these reaction patterns are considered harmful. Not only do they increase the degree of maladjustment already present, but, in the opinion of some authors (1), they may initiate behavior difficulties.

The rehabilitator will, therefore, find it advisable to analyze the home situation in order to evaluate more satisfactorily the causes of maladjustment. This is another example of the necessity to look behind the deviant in order to examine his deviations in the light of environmental influences.

Another extrinsic influence on the behavior of the physical deviant is that of isolation. Kubie (18) mentions the emotional isolation resulting from hospitalization. Also, Meyer's (23) remarks about hospitalization suggest that the consequent isolation leads to emotional disturbances.

There is some difference of opinion as to the effect of the severity of a disability on personality variations. Meyer (23) found that the severely crippled displayed more extensive psychological and psychiatric trauma. Kammerer's study (16) indicated that the most

poorly adjusted individuals have the most severe cases of injury. A differing opinion is expressed by Copellman (10), whose study of hospitalized poliomyelitis cases indicates that severity of reaction is independent of severity of disease. In exceptional circumstances, it is conceivable that severe injury to an individual might be the factor that would bring about the resolution of a previous maladjustment.

These divergencies of opinion may find common ground in a theory postulated by Barker, Wright, and Gonick (2). They compared the cases of "Beverly," who was slightly disabled, and "Marcia," who was severely crippled. Beverly's condition and attitude prompted her to strive for the appearance of complete physical normalcy. Marcia's handicap was evident, and she had adjusted to her position in society as a cripple. The fact that Beverly was neither entirely normal nor extremely disabled placed her between two sets of forces acting in opposite directions. She was on the margin between two different areas. The authors suggest that such "marginality" is likely to result in conflict and maladjustment. This is an interesting concept and finds some support in the statement of Lowman (22) that severe apparent disabilities are less hazardous (in terms of adjustment) than minor ones, since the individual with a major deformity cannot avoid readjusting in the light of reality. It seems highly probable that the marginality hypothesis will present a productive approach to analysis for rehabilitation.

The duration of a disability is another extrinsic factor, though apparently an unimportant one. Kammerer (16), Pintner (27), and Nagge and Sayler (26) all agree that the duration of the handicap has little effect on adjustment.

That the nature of the disability is also relatively unimportant is the conclusion of Barker, Wright, and Gonick (2).

Distinguishable from the extrinsic factors described above which are responsible for variations from normal behavior are the inner, subjective reactions of the individual to his disability. These reactions may be classed as intrinsic factors. The operation of these intrinsic factors is not easily analyzed. This fact probably accounts for the development of some extensive theories concerning the processes involved. Kubie (18) discusses the various aspects of experience by which responses to injury or disease may be colored. He describes reactions as occurring on (1) the reality level, in which

case the response is normal; (2) on the level of conscious fantasy and feeling, as seen in despair, terror, or rage at the time of injury; and (3) on the level of unconscious fantasy or feeling, in which case deep symbolic feelings in relation to injury may develop later. The following material shows how reasonably this explanation is substantiated by the results obtained in some other studies.

The initial reactions to battle injuries are reported by Randall, Ewalt, and Blair (29). Immediate response to casualties centered around nonpsychotic feelings of "being lucky" and worrying about family. Later, when in base hospitals, these more superficial symptoms decreased. The number of those amputees who expressed shame and self-pity increased as did the number of those reporting no emotional reaction. Rorschach analysis showed, however, that 67 per cent of all cases gave evidence of anxiety. This was at variance with their statements to interviewers that they had no worries. It might be assumed that many of these patients had begun to push their fears back into the unconscious.

Intrinsic factors may also be generated through mechanisms brought out in the work of Schilder (33) and Bender (4). Schilder proposed the theory of the body image which an individual develops in relation to his own body. With change in structure the image also changes. There are instances, however, in which the image does not vary with the actual somatic variation. Bender believes that behavioral distortions result when such differences between image and body exist.

The previous personality pattern of the handicapped will, to some extent, act as a determinant of any maladjustment that may develop (35). Adjustment to a handicap superimposed upon a child who has always been overprotected by his family will, in all likelihood, be very different from that of a child who has been previously encouraged by his family to develop a sense of independence.

Inasmuch as intrinsic factors originate from the more involved and less demonstrable mental functions, the development of psychoneurotic symptoms might best be explained in terms of Kubie's and Bender's hypotheses. Until further clarification is possible, the complexities of maladjustment contraindicate any single causative factor. The rehabilitator will continue to find it necessary to analyze such behavior manifestations as depression, self-pity, repression, obliterative reactions, withdrawal, introversion, abnormal calmness, and

other evident feelings in terms of the conditions unique to the individual's case.

Available evidence indicates that the type of physical handicap does not produce maladjustments peculiar to the injury. Therefore, the tendency to associate a particular disability with a specific personality pattern should be avoided. Rehabilitation must continue to be based on the consideration of the individual's experience, current attitudes, environmental pressures, estimated potential, and desired goals.

Psychological Procedures in Rehabilitation

The ultimate goal of rehabilitation—to bring about economic independence of the handicapped person—can be most successfully achieved when the individual has first worked out his adjustment to himself, family, friends, and society in general. The process of rehabilitation as it proceeds towards this objective will be discussed in this section. This discussion will, however, be prefaced by a brief description of some of the qualifications of a good rehabilitator and some of the general psychological principles applicable to rehabilitation.

Rehabilitation in its present stage of development is an art as well as a science, and the rehabilitator must combine the qualities of these two disciplines. Although the existence of "clinical intuition" is admitted by all, it defies definition and is difficult to inculcate in another person by direct training. Nevertheless, the prospects of developing such a capacity are undoubtedly increased if certain fundamental qualities are present. Among these might be mentioned as of basic importance such human qualities as sympathy, understanding, and a responsiveness to slight, as well as to the more obvious, behavior symptoms.

An essential part of the rehabilitator's technical skill is a knowledge of, and a sensitivity to, the types of adaptive mechanisms a disabled person may exhibit in his efforts to adjust. Basically, these mechanisms are identical with those exhibited by the nondisabled. The need for rationalization, compensation, regression, and the like exists in the physically disabled as it exists in the normal individual who attempts to cope with the inevitable frustrations of everyday living. It is the rehabilitator's responsibility to evaluate as accurately as possible the significance to the handicapped person of his adaptive

behavior and the effect it will have upon the new integration which he is attempting to achieve. Unnecessary mechanisms which serve no constructive purpose must be recognized and exposed. It is not, for example, constructive for a blind person to compensate for an inability to participate in sports requiring vision. A better understanding of the restrictions imposed upon him by his disability and a better appreciation of what he can do will help to remove the need for compensatory behavior.

An appreciation on the part of the rehabilitator of the importance of the factors mentioned in the previous section is, of course, a necessity. An awareness, for example, of the significance of the home environment and its effect upon personality will prompt the rehabilitator to work with the family in an effort to prevent the development of undesirable attitudes and to encourage the development of more favorable ones.

A knowledge of the significance of previous personality as a determinant of maladjustment (35) makes it essential for the rehabilitator to study the basic personality structure of each disabled person rather than to think in terms of a personality pattern attached to each disability. Efforts to modify this basic structure may have to be made as rehabilitation progresses, or, if this basic structure is sound, it may be used as the cornerstone of adjustment.

A realistic adjustment to a physical handicap is the foundation upon which a normal wholesome personality must be built. The aims, hopes, and ambitions of the individual must be revamped until they are brought into line with his disability. Nothing is to be gained by evasion and dissembling. It is necessary for the person to be given a frank evaluation of his disability and to be informed of the restrictions it will impose upon him. Depending upon the individual situation, of course, this information will be presented a little at a time in order to avoid the trauma of too great a shock. The rehabilitator must make the decision as to how rapidly the picture can be unfolded, but there should be no compromising or holding back of information without some extraordinary reason.

In bringing about an adjustment to a handicap, it is desirable to re-establish a field of interest as soon as possible. Occupational therapy should be used to the maximum extent. In the development of such a program, the previous interests and hobbies of the individual should be considered, as well as the disability and the over-

all objective of the individual's rehabilitation process. Psychologically, it does not matter a great deal what particular activity is encouraged as long as it represents a real interest to the person. It is part of the rehabilitator's role to determine with the individual the direction in which his interests may be most profitably channeled. The importance of interest and motivation cannot be overemphasized. In this connection the powerful influence of praise should be mentioned. The person who is interested in an activity will have less time to brood over his condition. He is less likely to become depressed and to try to escape from reality through daydreams.

A rehabilitation program cannot be planned in its entirety at the outset but must be constantly revised as rehabilitation progresses. An improvement in the physical condition must, for example, be paralleled by an opportunity to do more demanding and productive work. During the early stage of rehabilitation, the potential activities may be restricted to those associated with daily living (11). A complete analysis of such activities should be made with the idea of determining which can be undertaken without training, which can be relearned with little or no training, which will take considerable training, and finally, which he may never be able to undertake. The disabled person must be urged to try new activities, but he should be directed in these efforts so that he will attempt only those things that are reasonably well within his existing range of ability. Protecting him from failures will help to avoid the discouragement which is often the first step towards the development of a defeatist attitude.

As rehabilitation continues, data will be needed concerning the individual's intelligence, potentialities, aptitudes, and abilities. Information for an evaluation of these factors should be collected from the individual, members of the family, school authorities, employers, school records, work records, and test scores. Facts about hobbies, interests, school subjects (those disliked as well as those liked), social activities, extracurricular activities in school, and other factors may be extremely important in planning the rehabilitation program of the individual. Much of this extensive picture of the person's background can be obtained during skillfully conducted interviews (6, 31).

Within recent years considerable emphasis has been placed on the use of tests in rehabilitation. Unquestionably, psychological tests

and questionnaires have a place in this field. A great deal of useful information can be obtained from them, but, unless caution is exercised, their value may be overemphasized (5). Only too frequently the desire to take "an aptitude test" is linked with the hope that the results of such a test will settle all problems. The rehabilitator must counteract such an attitude when it is expressed by the physically handicapped. Many of the tests used with the normal person can also be used with the disabled, and some of the standardized tests have been modified so that they are particularly appropriate for the disabled (5, 9, 14, 28).

To make full use of psychological tests, the rehabilitator must have a knowledge of testing procedures and test construction. Familiarity with such concepts as validity, reliability, correlations, and probable error is essential. Perhaps of most importance is an appreciation of the limitations of each particular test. With such information as a basis for counseling, the rehabilitator can synthesize and integrate the test data with the other information that he has collected about the individual.

While a work training program is being developed, it is often desirable to arrange tryout periods for the several possibilities that seem most appropriate on the basis of information previously collected. In certain areas this will, of course, be more feasible to arrange than in others. In any case, the rehabilitator should keep in close touch with the individual as he enters upon the rehabilitation program. When the individual is ready for placement, a frank discussion of the unfavorable attitudes that some employers may have in regard to hiring handicapped persons will help to soften the psychological blows he may receive as he looks for a position (2).

Suggested Areas for Investigation

The wealth of discrete data concerning the psychological aspects of the physically handicapped and their rehabilitation is in need of systematic organization and careful evaluation. The vastness of the subject calls for still further study. It would be advantageous if future inquiries could be directed by a plan which would indicate both the present material available and the existing needs in this field. The authors of this article have made no attempt to include all the studies in this area, but they would like to present some topics

which they consider to be important in helping to formulate more effective methods of rehabilitation.

Promising leads derived from some of the studies mentioned earlier in this article should be followed up by other investigators. Among these are Kubie (18) and the "levels of experience" concept; Galton's (13) and, more recently, Bradway's (7) studies of identical twins; Schilder's (33) "body image" theory and Bender's (4) application of it; and the concepts of "marginality" and "egocentricity" as presented by Barker, Wright, and Gonick (2).

The tools used to determine psychological maladjustments also require further scrutiny and development. In order to avoid the possibility of misleading conclusions based on questionable data, it is necessary that more controls be introduced into interviewing situations. The information collected in this manner must be critically analyzed before interpretations are made. The value of the more recent nondirective methods of interviewing in the area of the disabled is still to be demonstrated but seems promising (31), as does the use of group therapy (17).

The entire field of testing must be re-examined in terms of the physically handicapped. Some of this work has already been undertaken by Pintner and his associates (28) and Hayes (14). The question as to whether modification of current tests will be adequate bears close study. The present authors are engaged in such a project. The College Entrance Examination Board of Princeton, New Jersey, has constructed and is now collecting data on the Scholastic Aptitude Test for the Blind (8). As further work is done in this field, new tests may have to be developed. It is difficult at present, for example, to use projective techniques with the blind. The possibility of constructing a test based on tactual or auditory sense needs to be considered. A final determination as to whether or not a test can be revised or a new one must be constructed has to be decided in terms of the particular use to which it will be put as well as the type of disability that is to be studied.

The examination of physical deviants by means of standard paper and pencil tests has been found unsatisfactory (2). Some types of questions are not appropriate for use with disabled subjects. The reliability of such tests in this area may be questioned.

More specific problems in this field which deserve further study are: (a) the "masking" phenomenon which Randall, Ewalt, and

Blair (29) suggest may be operating in the unverbalized feelings of the nondisabled toward the disabled; (b) the effect of handicaps on heterosexual feelings mentioned by Dumas and Keen (12) and investigated in relation to women by Landis and Bolles (19); (c) the problem of the deaf in lip-reading foreign languages in college; and (d), a point of increasing importance, the questions of marginality and egocentricity as related to nonsegregated educational institutions and vocational areas as mentioned by Barker, Wright, and Gonick (2).

Conclusion

The highly important and most integrative influences in the psychological rehabilitation of the handicapped are the attitudes of society and, as constituents of the societal group, of the rehabilitators themselves. Liss states that therapists should be artists as well as scientists (20). He also feels that it is as necessary to evaluate the potentialities for giving in our educators as it is to estimate the potentialities for receptivity in our patients.

That the mass of society has still to learn to do its part in the rehabilitative process is all too frequently observed. Greater awareness of this responsibility will undoubtedly follow the further development of a plan such as is described in the Baruch Report (3).

The effectiveness of the work being done by rehabilitation teams at such institutions as the New Jersey Rehabilitation Clinic (30), the Institute for the Crippled and Disabled in New York (15), and the Institute of Rehabilitation and Physical Medicine recently opened as a unit of the New York University–Bellevue Medical Center exemplifies a current trend of great value. These teams also give practical demonstration of the need for cooperative effort advised by Liss (20), who emphasizes the complexity of the rehabilitation problem by stating that no single individual could possibly contribute the encyclopedic approach now necessary in the attempt to restore the disabled to both functional and emotional normality.

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MAKING THE PUBLIC UNDERSTAND

By JOHN J. CORSON

"Too many people don't care what happens," William Howard Taft once said, "so long as it doesn't happen to them." His statement is peculiarly applicable to the public efforts to rehabilitate the sick and the handicapped. Few Americans know that five times as many persons—250,000—are disabled each year by injury, disease, or congenital handicap as are rehabilitated. Few Americans are familiar with what their government is doing to maintain them in health or to rehabilitate them after illness or accident has taken its toll. But every American whose child, brother, father, mother, or sister is handicapped is deeply concerned about what can be done to help that loved one.

Here, in a nutshell, is one of the major problems of all who are engaged in the public rehabilitation programs. For most Americans ill health and disablement are the principal threats to their security. And yet the public opinion polls show that most men and women do not know what their government is doing to rehabilitate these people who are disabled by illness or accident.

This is discouraging to every one engaged in vocational rehabilitation. It should be disheartening to all Americans. For a democracy is founded on the participation of its citizens in the affairs of their government. And citizens cannot effectively participate in their government if, in fact, they are uninformed and will not take time to understand.

Here is one of the crucial challenges to the maintenance of democratic government in our complex civilization. We have more devices than ever before—the telephone, telegraph, printing press, radio, and television—with which to communicate ideas and understanding to every human being. Yet we are unable to make men and women throughout the land understand what their government is doing that they may obtain the fullest benefit of the public services that are to be had and that they may direct and control the government that is theirs.

A year ago Lester Markel, an editor of *The New York Times,* pointed the finger of blame at the citizens themselves. Not more than one of every five citizens is able, he contended, to play his part as a citizen. "This is the way it might be figured mathematically," he wrote. "Twenty per cent of the population belongs in what I would call the definitely moronic class; another twenty per cent is ignorant and entirely unwilling to learn; another forty per cent is ignorant but willing to learn, provided, of course, that the lessons are made pretty simple. That leaves the twenty per cent segment of the well informed." In this manner Mr. Markel says, in effect, that most Americans *can't* be made to understand their government and what it is doing for them.

Making Community Leaders Understand

But all those who are engaged in providing for the welfare of human beings—whether they always realize it or not—have a clear and unavoidable responsibility for *making* Americans understand what they are about—and, even more important, WHY. We live today in a world of mills and factories and crowded cities, and yet we are hamstrung by the traditions of an agricultural civilization which is gone. Today there are eleven millions of aged, orphaned, blind, sick, and unemployed who are not earning (with minor exceptions), even in the postwar good times, enough to meet the merciless costs of rent, food, utilities, and clothing. They cannot turn to a beneficent free land for the money wages which alone will obtain essential food, clothing, and shelter. Yet we think and talk of how any man can "make a living," that only the worthless, shiftless, and lazy will accept aid, and that everyone should "save for a rainy day." And our representatives legislate for the aged and disabled, the sick and the unemployed, as though they still lived and worked on the farms and in the towns of the 1800's.

Yet the security of most Americans lies no longer in the land and what it will grow. It rests on the unstable and unpredictable opportunities they have to get and hold a job. The average individual, when stricken by illness or injury, can no longer turn to his savings or to his parents, brothers and sisters, or children to see him through a long illness and rehabilitation. Most families, recent

studies by the Federal Reserve Board have shown, have little saved even after the war years of high wages and war bond campaigns. And few families have the extra room or the extra cash which would enable them to aid the ailing one to get back on his feet.

Hence, those concerned with rehabilitation are face to face with the necessity of making not only Mr. Markel's "well-informed," but those he designates as "willing to learn," see the facts of life as they are in our society in the postwar 1940's. You must make them understand what you can do to rehabilitate men and women. But even *first* you must make them realize how small and helpless are these individuals in our complex world, and how essential it is that we build the type of society in which there are jobs for all, even the physically handicapped, and security for those ill or injured or aged who cannot work. No group of Americans has a greater stake in seeing to it that we have continuing full employment in the United States. For certainly you realize that those whose interests you are concerned with are the last hired and the first fired. You must, as Mr. Markel counsels, make it "pretty simple." Indeed, you must tell and retell them of the facts of life in our individualized, urbanized civilization. For only by making them realize that most unemployed individuals can no longer maintain themselves will you make crystal clear the necessity of their supporting both private and public agencies that treat and rebuild human beings.

Charity is a luxury with most Americans. Don't appeal to their charity. In my opinion, nothing has impeded the progress of rehabilitation, and of all welfare services, so much as their early and long association with charity. And nothing will handicap the long-run development of your activities like a continued appeal to charity. Charity is fine for the individual who gives. But the rehabilitation of handicapped men and women is no luxury that can be financed on a "crumbs from the table" basis. Make the American people realize that this nation suffers an economic loss of more than ten billions of dollars each year because disabled men and women are away from their jobs. And then base your appeal on the economic value of the services you render. *In short, state and restate* that every dollar spent for rehabilitation brings back ten dollars in the production of a worker who is back on a job he can do and do well.

But How?

How, you may ask, can you make the American people realize the essentialness and economic value of what you are doing?

First, and foremost, there is no better public relations than a job well done. The blind, deaf, or crippled person who succeeds in a new job *is your best salesman.* Develop your techniques and your methods, patiently and thoroughly, that every person you serve is a continuing example of your worth.

Every man or woman you serve gives you the opportunity to acquaint a doctor, an employer, a welfare administrator, or a friend or neighbor (who may be a newspaper writer) with what you have accomplished. *Grasp each and every opportunity.* Make the doctor realize what vocational retraining and the resultant sense of security may mean to the patient's physical recovery. Make the employer see how he can use, to his own economic advantage, the handicapped but trained worker. Make the welfare worker realize that rehabilitation has shortened the individual's dependence—not lengthened it. Make the hospital administrator know how well the men and women retrained while they recuperated in his hospital have succeeded. *In short, use every case as a salesman uses his samples;* sell the services you are rendering by pointing to concrete results day after day.

The employer especially must be sold. It is not enough, as too often has been the case, that employers give a handicapped worker a chance out of sympathy or as a charitable act. During the war, employers plagued by an intense scarcity of labor relaxed their hiring standards. Employers, it was said, would accept any applicant for a job "so long as the body was warm." They used many handicapped workers who were well trained, competent, and anxious to do a good job. Many did a good job, but handicapped workers were frequently placed poorly and given little help in breaking in on their jobs, and consequently they did not succeed. Hence, many employers must be *resold*—not to give any worker a chance, but to realize that these men and women can and are being trained to do a good day's work for a good day's pay.

But *technicians* seldom like to "sell" themselves. This is understandable, but still misguided vanity. The technician who can do a job *and* can also tell *how* and *what* he has done in simple, plain talk is the better technician. Rehabilitation agencies, such as the National

Tuberculosis Association, the National Society for Crippled Children and Adults, the Goodwill Industries, and the federal and state Vocational Rehabilitation Agencies, have thousands of employees. Each must recognize himself as a public relations agent for the development of all rehabilitation services. Each employee in each local branch, chapter, or office—the secretary as well as the office chief—must understand that a portion of his time, day in and day out, must be devoted to telling those with whom he comes in contact about his work and its accomplishments measured in human lives and human satisfaction. Even in the private agencies which must seek popular support each year, too little time is given to telling the community what has been done and how.

Take, for example, the use of boards of directors by private agencies and advisory councils by public agencies. Most of them are made up of the same community "stuffed shirts," or as they would prefer to be called, the community leaders. A very small group of civic names serve on board after board and council after council. Seldom is new blood added. Too often the attending board member or adviser gets the feeling that meetings are a bore or a chore to the agency executive rather than an aid. Then the usual sequel is that both the adviser and the executive agree that the board or council will serve best by meeting as infrequently as possible. The purpose of such boards and councils—to build public understanding—simply is not accomplished.

But advisory councils *can be* made useful tools toward building public understanding. To do this they must be made up of younger, more keenly interested, and more active persons than is typically the case. And the agency executive—be he a private or a public official—must in fact want the counsel of those he invites to serve, and he must work at making them understand what he is about and why.

Using the Press and Radio

Above all, don't think of your task of making the public understand in terms of press releases, radio scripts, speeches, and the annual report. As a newspaperman I won't minimize the importance of the press. Nor the radio, for the business I am associated with operates a radio station, too. But in the long run, more will be accomplished by the conscious efforts of every employee—high and

low—in his contacts with clients, contributors, doctors, employers, hospital officials, and even friends and neighbors than will be accomplished by printed material or radio talks. In short, *make every employee and board member a walking and enthusiastic mouthpiece.*

Then turn on the amplifier which the press and the radio offer. And this should not be difficult. Yet, viewing the results to date—the actual understanding you have built—you have had little success.

Let me tell you a story which may suggest why. I sat, one day in 1944, with Herbert H. Lehman, who was then Director General of UNRRA, and the hard-boiled managing editor of one of this country's major newspapers. Mr. Lehman was lamenting that most newspapers were giving little attention to UNRRA. They devoted little space to it; they seemed uninterested in it. The managing editor listened patiently. Then he interrupted gruffly: "Sure," he said, "UNRRA is getting little attention. All you tell us about UNRRA is in statistical tables, or formal committee reports or accounts of where your 'Big-shot Officials' are going or what they are doing. I haven't seen a picture of a ragged, hungry Greek kid in months."

The point is clear. But let me illustrate the same point another way. Newspapers frequently study what in their columns interests their readers. Last year, we at *The Washington Post* had representatives interview a sample of more than a thousand readers on a single day. They placed a copy of the day's paper before each reader and marked each story, picture, comic feature, and advertisement the reader had read. The paper was full that day of epoch-making news; threats of a war with Russia, a major strike, talk of lower taxes, an exchange between Taft and Truman. But the only story that more than five out of ten readers read was a story of two children who wandered into a park, fell into an abandoned quarry, and lay there helplessly injured and lost for a day. Ninety-five of every hundred readers read that story.

If you would catch the public's interest long enough to make them understand what you are about—through the newspapers, magazines, your annual report, or radio—dramatize your every word. Substitute human beings for statistics, examples of proud and employed workers for committee reports, and pictures for press releases. Make your activities real to other human beings, make your service live and breathe.

This, you may contend, is a professional's job, and you are but an amateur in the field. It is better done by one experienced in the craft of getting ideas across through the written or spoken word. But don't content yourself with any old hack because he served time on a newspaper or on a radio station. Do the job yourself unless you can find a craftsman who understands what you are doing and has that God-given quality of imagination. Even then, when you have that aid, force yourself to raise your nose above the pile of details on your desk, to think of the men and women who are walking along the street outside your window, and what they know and don't know about the people you serve, and what you are doing for them.

If you keep that sidewalk passer-by in mind, you will never relent in your efforts—

1. To tell the general public how small and helpless the typical individual and his family are in our present-day society where the opportunity to get and hold a job means so much.

2. To make every man and woman who serves on your staff a full-time public relations representative of the handicapped and what you are doing for them.

3. To make the leaders, particularly the younger and more enterprising community leaders, aware of the handicapped and the results of your efforts in refitting them for productive work, and

4. To dramatize what you are about; say what you have to say in simple, warm, human illustrations of men, women, and children who are maintaining themselves because of your aid.

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